The CURRAGHS of IRELAND

By James Hornell

THE following notes are a continuation of those already published dealing with the coracles of Great Britain. As with these, the Irish curraghs were originally formed of an open framework of withies, covered with hide. To-day, hide has given place to tarred calico, with the single exception of the design surviving on the River Boyne.

The usual Irish term for these light craft is *curach*, but as curragh has long been recognized as the English equivalent or rendering from the Gaelic, I consider it desirable to employ it. Another reason is that though *curach* is the general term in Ireland, it is not in universal use. In Kerry and Clare it is replaced by *naomhóg*, and often enough is termed "canoe" by Anglo-Irish speakers.

The materials on which this paper is based are twofold, one set literary, the other field work. The former led me incidentally into a fascinating wonderland of myth and strange adventure, of heathen hero-worship and Christian missionary endeavour, of hermits voyaging in search of secluded retreats and of criminals turned adrift to the mercy of wind and tide, of piratical raids and peaceful coastal commerce and fishing.

The longer and more important section deals with the details of construction of the different types of curraghs that survive. To obtain the necessary data, during the summer of 1936 I visited representative fishing ports and villages in the various maritime counties on the west coast where the curragh continues in use—from Kerry in the south, through Clare, Galway, and Mayo, on to Donegal in the north. At each centre details and measurements were obtained and photographs taken. I can claim, therefore, that this is a first-hand study of the various types. Incidentally I may mention that it is the first time such a survey has been made and the first time that a connected account has been published of the many interesting variations which occur in the design from county to county, and sometimes from port to port in the same district.

Everywhere I met the greatest kindness and helpfulness. The fishermen and curragh-builders invariably took a most intelligent interest in the work; particularly helpful was Mr Michael FitzGerald of Bally-na-Gall, Dingle, whose craftsmanship is a wonder and a delight. To Mr M. O'Heaney, Acting Curator, Irish Antiquities Division, National Museum, Dublin, I am indebted for facilities to study the rich material possessed by that museum and for the loan of certain unique photographs. Mr L. S. Gógan of the same institution and Mr P. Ó Sugrue, Dublin, supplied me with invaluable advice and introductions. Help from Mr Kenneth Jackson on the mythological side and from Mr Michael Ó Sugrue in compiling a list of Gaelic terms is gratefully acknowledged. I have also to thank the courtesy of Mr T. H. Mason, Dublin, for placing at my disposal a wonderful series of curragh photographs. Nor must I omit to thank Major H. F. M'Clintock and Colonel R. G. Berry for assistance given in elucidating the obscure story of the river curragh. Other help is acknowledged in the course of the descriptions.

Myth and History

The story of the skin-covered wicker boat, the curragh, is as old as the so-called "gods" of Irish mythology. A favourite theme of the early bards and story-tellers was the marvellous voyages in vessels of this type by men in search of an earthly Paradise. In the pagan days when the supernatural power of the beings constituting the Tuatha De Danann was the belief of the land, these tales of fabulous adventures in quest of a fair island peopled with voluptuous damsels who provided the favoured visitors with sumptuous feasts that never cloyed, were the stock-in-trade of the wandering minstrels who provided entertainment throughout the countryside. This pleasant "Otherworld" was set vaguely in the Western Ocean. It had its proper name, Mag Mell in ancient literature, Hy Brasil (Irish, Ui Breasail) in modern folk-tales; according to the latter its dim and shadowy form might be seen on rare occasions from the cliffs of western Ireland—away in the pathway of the setting sun.

A common form taken by the tale was the coming to shore of a woman of divine loveliness, in a spirit curragh. Fascinated by her beauty and charm and the promise of deathless delight awaiting him in the far-off land of the "gods", the hero of the story calls his friends together and tells them to prepare a great curragh. With their fair guide they set out; after many and perilous adventures they reach the wondrous haven, and find a warm welcome awaiting them. Here they live, time forgetting, in a round of endless delight of physical pleasure. The tale ends with the story of a tardy awakening; of the birth of a desire to return home to Ireland. The voyage back usually ended in tragedy, for "gods" mislike the spurning of their gifts. Typical of this genre of tale is the *Voyage of Bran* (Meyer and Nutt, 1895).

Another series, like the "Voyage of Maelduin" and that of Teigue, son of Cian, are fabulous tales of adventure in pursuit of enemies. Maelduin's curragh is described as constructed of three hides—*noi tre chodlidi* (*codal*, a hide). Here it is called *noi*, but further on in the tale it is termed a curach (*Rev. Celt.* IX, 459–60).

According to the bards these voyages or *Imramha* (sing. *Imramh*) were always performed in skin-covered boats or curraghs. The word for a skin-boat in modern Irish is *curach* (diminutive *curchán*), and this in various archaic forms continually recurs in these narratives. In *Bran*, the mythical being Manannan, son of Ler, sings:

Caine amre lasin m-Bran
ina churchán tar muir glan,

which is rendered into English by Meyer and Nutt as

Bran deems it a marvellous beauty
In his coracle across the clear sea.

In this version, transcribed in the sixteenth century (B.M. MS. Egerton 88, fo. 11*b*, 2–13*a*), *curchán* appears in the mutated form, *churchán*.

The large size assigned to these curraghs may be estimated from the statement that Bran and his companions sailed away

in three curraghs, each manned by a crew of nine men (rowers), with one of Bran's foster-brothers in charge of each vessel.

Upon linguistic evidence Kuno Meyer (Meyer and Nutt, *op. cit.* I, 135) considers this story as among the oldest remains of Irish story-telling, and that it was first written down in the eighth, or possibly the seventh century. That it is much older in origin is certain. In it, as we have seen, Manannan, son of Ler, sings a quatrain and how could this be possible at a period when the whole land was christianized unless the bards and travelling story-tellers had handed it down orally through many generations from a pagan and pre-Christian age?

In most of these *Imramha*, we have to allow much latitude for exaggeration by the story-tellers when dealing with the dimensions of the curraghs used in these sea adventures. In the *Voyage of Teigue, son of Cian*, the story is told of a raid on Munster by sea-rovers from Fresen, over against Spain. These people had carried off Teigue's wife, brethren and many of his people. Teigue resolves to follow and effect a rescue. He builds a great curragh provided with twenty-five thwarts and covers it with "forty ox-hides, of hard bark-soaked leather". He fits it with all necessaries, so that it may keep the sea a year if need be (Meyer and Nutt, I, 202). After the usual marvellous adventures, he succeeds in his quest and returns safely home.

Again, in the *Voyage of the three sons of Ua Corra*, the story runs that these men, in preparation for a pilgrimage voyage, had a great *curach* built "covered with hides, three deep, and capable of carrying nine persons"; five others were eventually permitted to accompany the party (O'Curry, 1878, 289–90).

A second series of curragh voyages were the *Longasa* (sing. *Longeas*)—voyages undertaken involuntarily. Some were imposed by the priesthood as penance, others by the lay power as punishment for crime committed, and some to avoid pursuit by revengeful enemies.

An example of a typical *longeas* is related in the Life of St Patrick, where we are told how an Ulsterman named MacCuill, a converted sinner, committed himself to the mercy of God in a one-hide curragh without oar or paddle in fulfilment of a penance imposed upon him by St Patrick. In the Latin

version, the vessel is termed a *navis unius pellis*, while in the "Tripartite Life", the Irish equivalent, *curach oen seiched*, is found.

Here it may be useful to state that the size of curraghs was denoted by the number of hides required to cover the wicker framework. An ordinary ox-hide is sufficient to cover a frame about 6 ft. long by 4 ft. wide. This explains what is meant when a curragh is said to be made of two hides and a half, three hides and so on. Joyce (1903, II, 423) is in error, I consider, when he states that some curraghs had a double hide covering and some a triple. No unequivocal mention is on record of such a system of construction, neither is anything of the kind known in localities where skin-boats are in use at the present day; in India, Tibet and among the Eskimos a single thickness of hide is the invariable rule. The only passage in Irish tales susceptible of being understood in the sense mentioned is that where the sons of Ua Corra cover a curragh with hides "three deep". This curragh was to carry nine men, and a three-hide size is just what would be required to accommodate this number. The Irish word rendered as "deep" in the translation requires critical examination as to its exact meaning having due regard to the context.

The overpowering fascination that the Imramh sagas of pagan days continued to exercise for centuries among the Irish is shown by the fact that we owe the preservation of those that have come down to us to the romantic vein in the character of the monks of the early Christian Church in Ireland. In spite of their religious teaching they could yet be touched by the glamour of the old pagan days. Nor did this fascination end with the putting on record the old stories. In the course of time these monks sought to emulate their heathen ancestors. Thus it came about that in the middle of the sixth century, monks of the Irish Church began to voyage across the seas in skin-covered boats either in search of a quiet home on some uninhabited island or with a view to carry the torch of their faith to the benighted people of other lands.

Of these the most famous and fabulous is the Imramh of St Brendan. Doubtless there is a solid substratum of fact in

the story, but the power of the heathen Imramha had possession of the narrators, so that, as the story passed from mouth to mouth, it gathered new marvels until it became one of the most popular tales in Ireland. Its fame spread to foreign lands and it may well be that it led indirectly to the discovery of America by Columbus.

For us its value lies chiefly in the fact that the tale describes in detail the principal features of an Irish curragh of the sixth century. The account, which is in Latin (Moran, 1872), tells how the saint and his companions "using iron tools, prepared a very light vessel, with wickerwork sides and ribs, after the manner of that country [Ireland] and covered it with cow-hide, tanned in oak bark [*rubricatis in cortice roborina*], tarring its joints: and they put on board provisions for forty days, with butter enough to dress hides for covering the boat [whenever the covering needed repair], and all utensils necessary for the use of the crew" (Joyce, 1903, II, 424). A tree [mast] was fitted amidships and a sail and the equipment requisite for the steering of a boat were provided. There is discrepancy in regard to the number who accompanied St Brendan. In the "Life" in the Book of Lismore, three curraghs are mentioned, each carrying twenty persons; in the Metrical Life the number is raised to thirty in each. Accepting the lower figure, the size of the curraghs would be considerably larger than any of the present day.

Among the places which the saint and his companions probably visited was Iceland, reached after forty days sailing northward. Afterwards they seem to have touched at the Shetlands on their way south to the coast of Brittany. At the end of five years Brendan returned to Ireland, only to be advised by his foster-mother Itha to keep away from Ireland for some time longer to avoid the still active resentment of the family of a lad drowned through an inadvertent act of the saint. Itha disapproved of navigation in flimsy curraghs; she advised the use of boats made of wood. Brendan agreed, so on his second voyage the craft he used was a wooden ship as recommended by the thoughtful Itha.

St Brendan's first or curragh voyage probably occurred A.D. 519–24; his second or wood-built boat voyage, 525–27.

He was born in the Fenit, a township of Kerry, the county distinguished to-day as having the finest curraghs used by Irish fishermen.

St Columba used curraghs in his voyages to and from Iona. In his first voyage to the island in A.D. 563, he was accompanied by twelve companions in one large curragh. He landed at a little bay still called Port na Curaich, the Bay of the Curragh, and is said to have buried his curragh in the sand, satisfied that his beloved home, Ireland, was out of sight—to see it always before his eyes would have disturbed his thoughts.

St Cormac, one of his disciples, used a curragh in his three voyages in search of a sea-girt solitude—"desert" as these would-be anchorites termed such a place. Adamnan who wrote the Life of St Columba a century after his death, describes how Cormac on his third attempt, having set up sail in his curragh, was carried swiftly northward for fourteen days and nights before a strong southerly wind. Ever driving toward the Arctic they found themselves beset by unfamiliar dangers. Of these the most terrifying was the attack by myriads of loathsome stinging creatures about the size of frogs, which struck the sides of the curragh with such violence "that it seemed as if they would wholly penetrate the leathern covering" (Reeves, 1874, 72). They had begun to despair of life when at last, in seeming answer to their prayers, the wind suddenly veered round, enabling them to return home.

These instances show how seaworthy these old voyagers considered the curraghs of their time. That this was not due to lack of acquaintance with wooden-hulled boats is evident from Adamnan's account of the boats possessed by the monks of Iona in Columba's time (Adamnan was himself a successor of Columba as Abbot of Iona). Besides curraghs of wicker and hide, he enumerates a variety of wooden craft known to or used by the monks. These include dug-out canoes and several types of plank-built vessels. The dug-outs were of large size; they appear to have been employed for the transport from the mainland of timber required for buildings and boat construction.

In the extremely ancient Brehon Laws we have a nearly

similar classification into (*a*) *ler-longa* (sea-ships), large wooden vessels fit for oversea trade, (*b*) *barca*, smaller wooden vessels used in coasting trade, and (*c*) curraghs of wicker. Dug-outs were plentiful on lakes but these required little technical skill to dub out and so were ignored in the rates of payment prescribed by the Laws to the master craftsmen (*ollaves*) who constructed them.

The lightness and shallow draft of the curragh made for speed. It therefore became the favourite of the hordes of plundering Irish who descended on the shores of Britain from time to time during Roman rule and increasingly thereafter until checked by rival bands of Saxon plunderers. Irish raids were particularly active during the fourth, fifth and sixth centuries; they were always made in curraghs.

The British monk Gildas, who wrote in the middle of the sixth century, describes vividly their raids following the departure of the Romans in the preceding century. Habington (1638) translates the passage in picturesque language. He gives it thus:

"They [the Romans] were notwithstanding no sooner gone home, but as the brownish bands of wormes and eamots, which in the heighth of Sommer, and encreasing heate, doe swarming breake out of their most straight and darkesome dens, the dreadful routes of Scots and Picts...aland out of their ships, wherein they were transported over the Scithian vale" [St George's Channel]. In this translation "ships" should be rendered "curraghs" for in the Latin text Gildas wrote *de curicis*. The Scots here referred to were actually Irish from Ireland; the term Scot continued to mean "Irishman" as late as the ninth century.

The most famous of these Irish invaders was Niall of the Nine Hostages, King of Ireland from A.D. 379–405. He ravaged Wales repeatedly and even effected settlements there. Eventually he was chased away by the Roman general Stilicho.

Commerce between Ireland and Scotland was considerable, for Scots from northern Ireland were in occupation of much of the western Highlands; instead of the raids we hear of upon Wales, intercourse with Scotland was peaceful. In Cormac's

Glossary, compiled in the ninth century, we read that Breccan, grandson of Niall above mentioned, had a fleet of fifty curraghs trading between Ireland and Scotland. One tragic day the whole fleet were caught in a great tidal whirlpool in the neighbourhood of Rathlin Island; all were lost, and thenceforward the whirlpool or tide rip has gone by the name of Coire-Breccain [Corrie-vrekan], "Breccan's cauldron".

Again, when the fugitive Irish chieftain Lughaid, surnamed MacCon, found asylum at the Scottish Court, the King of Scotland, according to the tale, promised not only his own help for an invasion of Ireland but also that of the King of Britain and the King of the Saxons. The number of small craft supplemental to the ships, galleys and barks thus requisitioned to convey the invading host across the sea was so great that the chronicler says "men do affirm that betwixt Ireland and Scotland was a continuous bridge of curraghs" (O'Grady, *Silva Gadelica*, II, 352). To give one more instance: In the story of "The Siege of Etar", when the Ulster forces were besieged in Ben Edair (Howth) by Leinstermen, they implored their friends in the north to come to their relief either by land or "in curraghs" (*i curchaib*) (Joyce, II, 426).

The last of these old references that I shall quote is an entry in the *Annals of Ulster*, under the year 621. Referring to the drowning in this year of Conaing, son of Aedhán mac Gabhráin, of the Irish kingdom in Scotland, the chronicler sings:

> The great clear waves of the sea
> and the sand have covered them—
> into his frail wicker curragh
> they flung themselves over Conaing.
> The woman has cast her white tresses
> into his curragh upon Conaing;
> Hatefully she has smiled her smile
> to-day upon the Tree of Torta.

Here "the woman" is the sea; the reference to the Tree of Torta is obscure in this context.

Although curraghs figure prominently in many old accounts of Ireland until and including the Age of the Saints, records subsequent to the seventh century have scarcely any contemporary references to their use. The appearance of the Norsemen and Danes on the eastern seaboard of Ireland in the eighth and ninth centuries and their seizure of all sea trade, entailed a complete revolution in the design of Irish oversea trading ships. Thenceforward the planked ship of wood drove the curragh off the high seas and the curragh survived only on the wild western and north-western coasts for fishing and local coastal trade, and for traffic on some of the inland waters.

The only early English record is the well-known story mentioned in the Anglo-Saxon Chronicle and by Florence of Worcester of the landing in Cornwall of three pious Irishmen (so-called Scots) in a hide-covered boat in the year 891. Their vessel was of good size, for the chronicler relates that two hides and a half were sewn together to form the cover; this would allow a length of about 15 ft. This curragh, abandoned by its occupants to the guidance of God, took seven days to drift to the Cornish coast; on landing the men took their way to the Court of King Alfred who received them graciously and set them on their way to Rome. The prominence given to this event does not mean, I believe, that the English were unaware of the use of curraghs by the Irish; it is probable that this voyage was chronicled as being a notable instance of the providence of God in guiding the drifting craft to a haven of safety.

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THE CURRAGHS OF IRELAND

II

By James Hornell

The Curragh in General

In the following pages the word curragh (Gaelic *curach*) will be employed as the regional term for every variety of craft found in Ireland which has had as ancestor some form of wickerwork boat covered with hide. The contrasted term "coracle" (Welsh *corwg* and *corwgl*) will be restricted to those of parallel origin, found in England and Wales. Curragh is also a correct classificatory and discriminatory term suitable to apply to all the Irish forms because there is a fundamental difference in the method of constructing the framework of the vessel in the British and the Irish areas respectively.

In British coracles the framework is put together mouth up, the bottom being the part first laid down. In Irish curraghs this procedure is reversed; the gunwale is formed first, the bottom and sides being put in position later, a procedure which results in the building of the curragh bottom upwards. This method is the invariable practice in Ireland. Even the oval, coracle-shaped curragh used on the river Boyne (Pl. III, fig. 2) is built in this inverted position—most unusual in boat construction.

This radical difference in procedure suggests a difference in origin, but it is more probable that it has been due to modification of method entailed by the need to build vessels of length greater than that of the river coracle and more suitable for use at sea, for fishing and for coastal transport.

As a direct consequence of this need, considerable increase in longitudinal rigidity was required; this was achieved by borrowing the stout wooden gunwale frame characteristic of plank-built boats and by the insertion of thwarts. This radical change in design would lead in turn to an inversion of the procedure normally followed in the building of coracles. Once the flat, wooden gunwale frame was introduced or adopted, experiment would soon show that it is much easier to arch the

withy ribs over it than to pin them and the stringers to the ground and then to bend their ends upward for insertion one by one into holes in the underside of the gunwale frame. The former method enables the builder to exercise greater control over the curvature of the ribs and thereby permits the work to be carried on more expeditiously.

Apart from the Boyne river curragh, all others at the present time are made up of a stout wooden gunwale frame, single or double, of a series of transverse, U-shaped rib-frames, and of a much more closely set series of fore-and-aft stringers on the outer side of the rib-frames, to which they are secured either by tying with thongs, withies or twine (old style) or by clenched nails (new style). The ends of all or nearly all the ribs and of the principal stringers are tapered and inserted into holes bored at intervals through the gunwale frame. Over all is stretched one, or, more rarely, two layers of cloth, usually calico, which is eventually saturated with tar boiled down to the consistency of pitch.

In curraghs with double gunwale frames, the lower gunwale is put together first, with what will eventually be the upper side in its proper relative position. The thwarts are then nailed on to stiffen and hold the parts in place. This done, work begins on the upper gunwale; when finished, short subvertical struts or "standards" are inserted between the two gunwale elements, holding them apart at a distance of about 5 or 6 in. This completes the double frame which is now ready to be turned upside down to permit the ribs and stringers to be built up to form the bottom and sides.

The limits of variation are wide. In some curraghs, notably those of Connemara and Co. Mayo, the stringers widen into thin planks, touching one another at the edges. Here the curragh has actually evolved into the semblance of a plank-built boat, the sole difference being that a tarred cloth cover is used in order to obviate the need to caulk the seams of the planking. In others, on the contrary, the stringers are narrow laths, fairly widely separated (Dingle), thereby retaining the memory of the lattice-work basketry characteristic of the coracle ancestor.

The rib-frames are also formed of laths, sawn or cloven, in

the majority of sea-going curraghs, but a few in Donegal continue to use paired withies as ribs as do also the Boyne river curraghs, which have both ribs and stringers of this description.

Some curraghs have loose seats; others have them fixed as ordinary thwarts. The great majority are propelled by oars pivoting on a thole-pin passing through a heavy block nailed to the afterside of the loom; the blades are narrow and cannot be feathered because of the method of pivoting. A similar type of oar is used by the sardine fishers of Portugal (Setubal and Oporto) to propel their light, canoe-shaped boats which are not unlike the light curraghs of Kerry in shape and size; this type of oar also recurs in Madeira. I offer no explanation of this similarity in design.

True oars working between pairs of thole-pins are employed in a few localities (Achill Island, Iniskea and Blacksod Bay).

A serviceable lug-sail is carried by the larger Dingle curraghs and a small one by large Aran Islands' boats, but all others depend solely upon oars or paddles; paddles are used only in localities where curraghs retain very primitive characteristics (the west coast of Donegal and its dependent islands).

One or even two lee-boards are employed by some of the larger Dingle curraghs; this enables them to carry a larger sail than would otherwise be possible with safety, apart from the advantage of reducing leeway.

Nearly all the variations in shape and the treatment of constructional features in Irish curraghs may be aligned into a nearly complete series corresponding closely to the principal stages in development through which it is probable that the highest types have passed; existing variations may be said to recapitulate the past history of the curragh. Most primitive in construction is the small paddling curragh of the Boyne, oval in plan, with an open framework of doubled hazel wands and an undeveloped gunwale—the whole cased in the hide of a single ox.

Next comes the little sea-going paddling curragh of the Rosses and the Donegal islands, 8–9 ft. long (Pl. III, fig. 3). Here, while the length has grown considerably, no corresponding increase has taken place in the beam. Apart from this change in plan, noteworthy differences are the substitution of a wooden gunwale for a bundle of twisted withies, the employment of laths as ribs and stringers and the substitution of tarred cloth for tanned hide as the covering on the bottom. Changes are slowly being made, however, and in many a removable rowing thwart and thole-pins have been added, permitting the curragh to be rowed as well as paddled (Pl. IV, fig. 2). Both forms continue to be bluffly rounded in front as in the Boyne type but the after-end is truncate.

Donegal also provides the next advance in development. In the curraghs of Sheephaven, the length is increased and ranges from 15 to 20 ft.; the fore-end is pointed and sheered and one at least of the thwarts is fixed (Pl. V, fig. 1). Oars are always used, each pivoted on a thole-pin which passes through a hole in a block affixed to the loom (Text-fig. 1 *d* and *e*).

In these curraghs as in all others except those of the Boyne, each lateral gunwale is in two sections, (*a*) a fairly horizontal main or body section and (*b*) a curved bow section, sheered up except in those of the Rosses. To secure the joint which is in the form of a rough overlapping scarf-splice, a shaped shoulder-piece overlaps and keys together the ends of both sections to which it is attached by through bolting. Curiously enough, double withies continue to be used for ribs in the Sheephaven curraghs, exactly as in the Boyne type.

Coming south to Blacksod Bay in Co. Mayo, the curraghs there approach closely in plan and gunwale form to those of Sheephaven, but here the ribs are of laths, not withies, and the stringers are broad thin planks completely covering the bottom. The thwarts are two or three in number and are all permanently fitted in place.

Southward of Blacksod Bay a new feature is introduced and is common to all curraghs from Achill Island in the north to the Dingle peninsula in the south; this is the double gunwale frame, consisting of an upper wooden gunwale held apart from a twin lower gunwale by a series of widely spaced short struts or "standards", 5–6 in. long.

The supreme achievement of the curragh builder is seen in the craft that fish out of the many creeks and bays of the Dingle

peninsula and the Blasket Islands. A few years ago (1921) it was estimated[1] that there was a population in this locality of not far short of 7000, wholly or in great part dependent on fishing. Of these 7000 the overwhelming majority of the breadwinners were dependent upon the curragh for the prosecution of their calling, carried on often under conditions of extraordinary hardship. To-day their numbers are reduced but the curragh still dominates the lives of thousands.

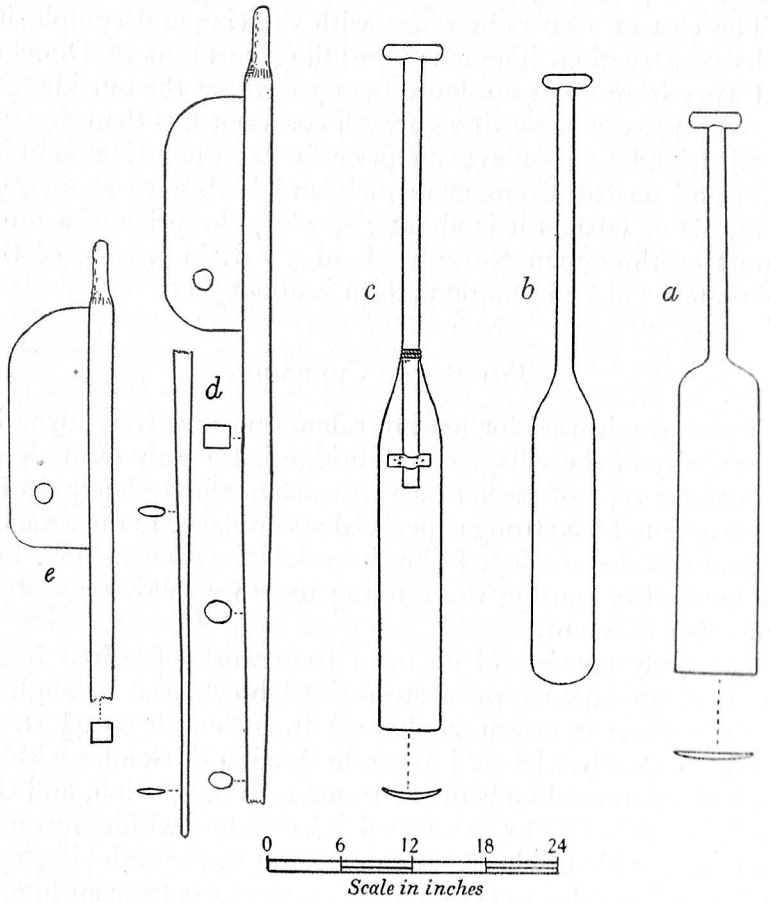
In the north the workmanship of curraghs is rough and the design in general crudely worked out. In the middle section, Mayo and Connemara, both improve greatly, but it is in Kerry that curragh craftmanship attains its highest level of excellence. As Michael FitzGerald of Ballydavid proudly boasts, almost every piece of wood in one of these craft if not curved is aslant; except the thwarts, not one is truly vertical. Everything, too, has to be balanced with extreme exactitude.

The boat-shape of these curraghs suggests that its design is an imitation in lath and canvas of the semblance of a plank-built boat. This was my original hypothesis, but to-day I consider that in its boat-like forms, curragh design presents us with an instance of convergent evolution, where an old type, such as is represented in the Rosses' curragh, has tended gradually to approach a plank-boat type, rather than being *originally* a direct copy in wood, withy and hide of such a craft.

It is, however, doubtful if the series thus reviewed is, in its entirety, a true evolutionary series. As will be seen later, certain considerations make it likely that the Boyne curragh is not the survival of a primitive first stage but represents a degradation of type, resulting from the modification of a sea-going type such as that seen in the Rosses, to one suitable to the simpler needs of a salmon-fishing craft used on a gently flowing river. If this be so, we have to ignore the Boyne curragh in the series which would then start with the Rosses' type and evolve gradually toward a convergence with plank-built boat forms of the two types distinctive of (*a*) the Dingle and (*b*) Achill and Blacksod.

1 *Report on Sea Fisheries by the Commission of Enquiry into the Resources and Industries of Ireland*, Dublin, 1921.

When brought ashore curraghs are kept bottom up. The usual plan is to support the sheered bows from straining by supporting the shoulder splice upon a low pile of stones and then to lay



Text-fig. 1. Types of paddles and oars. *a*, paddle used on the Boyne; *b*, modern type of paddle, Donegal paddling curragh; *c*, old type of paddle, same locality; *d*, Sheephaven type of curragh oar; *e*, Mulroy Bay oar—local form of thole-pin block or "bull". (Original.)

heavy boulders against the head and the stern. In exposed, gale-swept localities, stone-walled land-docks are built round each curragh for further protection. In the Dingle, where the

curraghs are too delicately built to stand rough treatment, they are supported at some 3 ft. from the ground upon stout posts, placed in the most sheltered place available. At Kilkee in Clare, posts are replaced by piles of three or four big stones.

The cost of a curragh varies with the size and complexity of its construction. The small paddling curraghs of Donegal and Tory Island cost not more than 30*s*. or, at the outside, £2, whereas a two-man rowing curragh costs not less than £4. At Achill Island £5 is an average price for the same size; at Inisbofin and on the Connemara mainland it rises to about £9; in the Aran Islands it is about £8, while the price of a four-thwart or three-man curragh, about 25 ft. in length, of the elaborately finished Dingle pattern is about £15.

The Boyne Curragh

The curragh used for netting salmon on the river Boyne in the vicinity of the village of Oldbridge is the only example of the coracle type of basket-boat in existence in Ireland. In its construction it has strong superficial resemblance to the coracles of South Wales employed likewise solely for river fishing, but the method of putting the framing together follows a system altogether different.

The body consists of an open framework of paired hazel wands arranged to form a steep-sided bowl, oval or slightly ovate in plan; it measures about 6 ft. in length by $4\frac{1}{2}$ ft. in beam. A closely wickered gunwale skirting of slender withies holds the upturned ends of the frame rods in position, and the whole is finished off by a marginal twist of stout withies forming a gunwale without sheer. A thick hazel-rod mouth rim, tied on, is usually added to help in keeping the parts from springing out of shape and to form a protection to the net against damage. Over all is drawn a tanned ox-hide, reddish brown in colour, laced to the wickered gunwale at short intervals, and at longer distances by an independent lacing which makes turns around both gunwale twist and gunwale rod.

A wooden seat is slung precisely at mid-length by paired cords at each end. Further support and tension is given

incidentally to the framework by a system of braces made of twisted hazel withies arranged as shown in Pl. III, fig. 2. Its true purpose is, however, to provide a light platform whereon to pile and transport the net used for fishing. The curragh is completed by lapping the gunwale in its median and stern sections with a strip of hide or cloth to prevent fraying of the net during paying out and hauling operations.

Two men form the usual fishing complement. One kneels at the fore-end, paddling over the bow with a short, broad-bladed paddle; the other sits on the thwart, facing the stern and it is his duty to tend the net, alternately paying out and hauling in. Alternatively one man may tend the net as well as directing the curragh's course by paddling, but this is ticklish work; the man may easily let the net slip through his hands and spoil the cast.

The paddle used is short, less than 4 ft. in length. The blade is parallel-sided, flat on one surface, slightly curved transversely on the other, making it plano-convex in transverse section. A short transverse bar at the top of the loom affords a good grip for one hand (see Text-fig. 1 *a*).

At the present day the only place where this form of curragh is found is on the river Boyne at Oldbridge, about 4 miles above Drogheda. Curraghs are used there exclusively for salmon fishing; but for this they would have become extinct long ago.

The reason for their survival as stated by Mr Tiernan, who at present leases the fishery from Captain Coddington of Oldbridge, is that in the reach fished, which is in the upper tidal region of the river, where the level rises and falls with the tide, the banks in many places are high and vertical or even overhanging, places where a curragh alone can get close in, under them; this would be impossible for a boat propelled by oars.

Tiernan's "fleet" of curraghs numbers two only—the sole surviving representatives of the Irish river curragh.

In spite of the interest generally taken in this primitive species of craft, very little definite information is on record. The only important notice is that by W. F. Wakeman who made a drawing in 1848 of two of these curraghs at Stackallen, near Slane in Co. Meath. The mention of this place shows that the use of

curraghs extended at that time considerably higher up the Boyne than at the present time.

Wakeman's description is as follows[1]:

A regular frame of willow ribs, generally laid in pairs, and extending along the sides and floor, formed the skeleton of the future boat, which was in the form of the bowl of a spoon, a little broader towards one end than the other, about 8 ft. in length, but very nearly circular. The extremities of the ribs for a depth of about 18 in. from what would now be called the gunwale, were set in a very thick, strong and closely woven band of wickerwork, above which the ends of the rods slightly projected. Midships was a thwart of ash, through which were rove thongs composed of twisted osiers, connecting the seat or thwart, with various portions of the above-mentioned band, so as to bind the work together. The frame was then covered over on the outside with skin, untanned, of the horse or cow; and the result was the completion of a boat well adapted to the requirements of fishermen, and very useful, as I have experienced, as a means of crossing the Boyne at a place distant from any bridge or practicable ford.

Modern construction

An excellent description of the way a Boyne curragh is made, illustrated by a fine series of photographs showing the progressive stages in the work, was given by Mr F. E. Stephens in 1932[2]; to this I am indebted for the major part of the following account.

The builder first marks out the plan of the gunwale on a level piece of ground. This he does by means of a primitive compass made of a stick attached to each end of a length of string such as is used by gardeners when marking out curved or circular flower-beds. With this he describes two semicircles of about 2 ft. radius, with their centres 15–20 in. apart. The opposed ends are then joined or "humoured together" as the builder phrased it. This gives an elliptical outline which is then marked out with pegs.

Around this ellipse thirty-two hazel rods, 9–10 ft. in length and about $2\frac{1}{2}$ in. in circumference, are arranged, upright, at measured distances apart with their thick ends driven several inches into the ground. Eight are placed *vis-à-vis* on either side, with seven at the end intended as the stern and an equal

1 "On the curach...formerly in use on the rivers and lakes of Ireland", *J. Roy. Hist. Arch. Ass. Ireland*, Fourth Series, vol. II, year 1872–3, Dublin, 1874.

2 *Illustrated London News*, 3 December 1932.

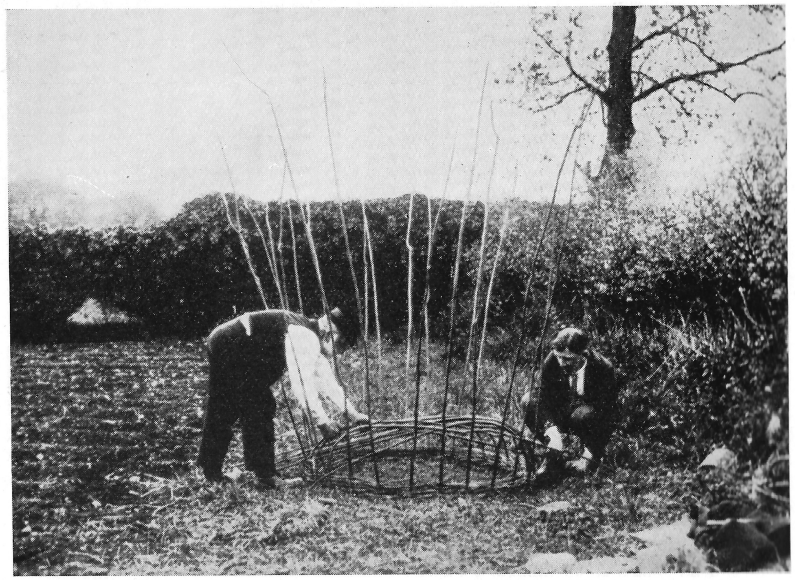


FIG. 1. A BOYNE CURRAGH IN CONSTRUCTION. BENDING THE LATERAL WITHIES INTO POSITION

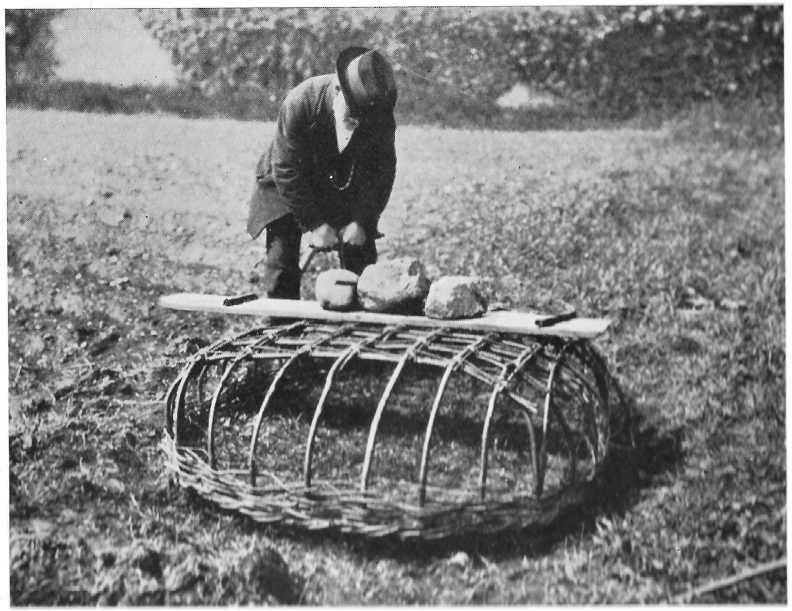


FIG. 2. THE FRAMEWORK COMPLETE AND WEIGHTED WITH STONES

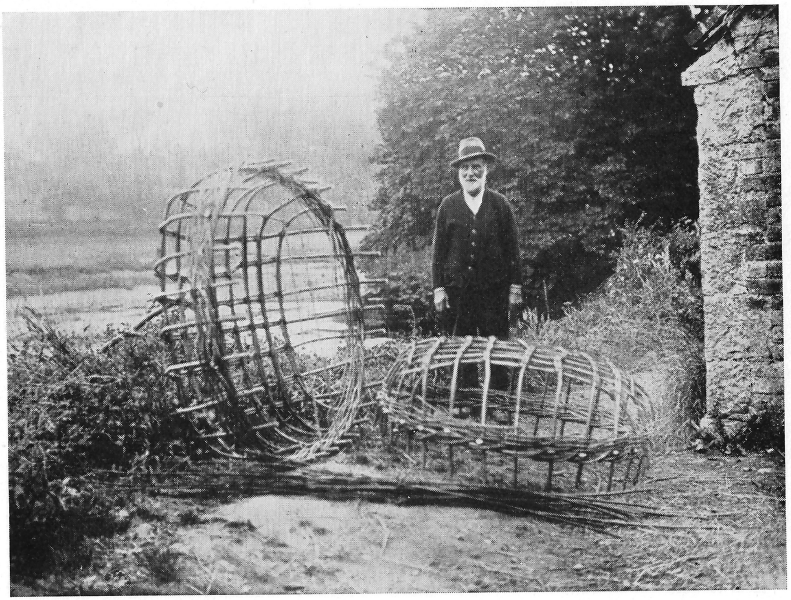


FIG. 1. FRAMEWORK OF TWO BOYNE CURRAGHS READY TO COVER

FIG. 2. A BOYNE CURRAGH AFLOAT SHOWING THE CLOTH PROTECTION ON AFTER GUNWALE

number at the opposite end, the future fore-end. An extra rod is planted on either bow to strengthen this end where the paddler will kneel when propelling the craft during fishing operations.

When all the rods are in position, a stout gunwale is formed by weaving strong withies around the upright rods, close to the ground. Above this a skirting band is next formed by weaving in several rows of slender withies. This marginal basketry serves to weld the rods together at their bases and to give a foundation on which to erect the basal portion of the frame. This is done by bending down the eight rods on either side, and forcing their free ends into the ground on the opposite side (Pl. I, fig. 1). The seven rods at each of the two ends are similarly dealt with. Care has to be taken at this stage to get the curves adjusted properly in broad U-form, and to ensure their appropriate symmetry. When all are in proper position and shape, a board weighted with heavy stones is placed upon the framing which is now left to set for two or three days (Pl. I, fig. 2).

After the frame is sufficiently set, the weighted board is removed, and the fore-and-aft rods, which form rudimentary stringers, are tied with twine to the transverse rods or rib-frames at each point of intersection. Four or five turns are made obliquely over the crossed rods and finished off by a fore-and-aft half-hitch embracing only the paired rib. From here the twine is carried along on the outer side to the next crossing point in the transverse direction and the operation repeated.

Here it must be explained that the rods on opposite sides and ends are arranged in such way that when curved down opposite numbers lie side by side to form doubled ribs and stringers, which we may call "couples". It is to be noted, however, that neither member in any couple reaches as far as the opposite gunwale by several inches; one unit in each pair alone passes through the skirting and gunwale on either side.

After all the intersection points have been tied, the weighted board is replaced and work is discontinued for about a week to ensure the final set of all the curves (Pl. I, fig. 2).

On recommencing operations the thin ends of the various

rods are broken off below the gunwale in such a way that a portion of the bark is left to protect the rough ends which might otherwise cut the hide cover. The ground around the embedded rod butts is loosened with a spade and the framework lifted clear and turned right side up. To prevent the frames from spreading a few tension cords are stretched taut between the principal projecting rod ends on opposite sides (Pl. II, fig. 1).

The frame is now ready for covering with a tanned hide made soft and pliable through immersion in the river. It is fitted as closely as possible over the framework and laced to the gunwale with strong twine. After the cover is adjusted, a seat is put in, supported under each end and tied to each gunwale with twine or thin withies. Braces made of doubled withies, twisted together, are next fitted at gunwale level to form a net support. A short, obliquely running brace runs from the gunwale on each side from about 10 in. forward of the seat to the adjacent end of the seat, where it is rove through a hole near the fore-edge a few inches in from the gunwale. A corresponding short brace passes from near each end of the seat on the after-side, but instead of connecting with the gunwale its after-end is looped round a transverse brace passing from side to side, about 9 in. abaft the seat (Pl. III, fig. 2). Lastly, an unpaired brace, 18 in. long, passes in the median line from the centre of the stern gunwale to connexion with the transverse brace.

Sitting on the seat the builder proceeds to hammer on the projecting ribs and stringers until the skin cover is fully stretched. When this is accomplished to his satisfaction, the ends that still project are cut off and covered by a protective mouth ring made up of several stout hazel withies placed end to end, with their ends slightly overlapped. This stout ring is bound upon the gunwale to give an even edge and to help in preventing any part of the frame from springing out of position.

As will be seen from the above Boyne curraghs as they exist to-day differ considerably from Wakeman's description and from his drawing made in 1848. He states specifically that the woven skirting extends to a depth of about 18 in. below the lip of the curragh. He makes no mention of any specially strong wicker gunwale rim nor does he mention the encircling gunwale

rod. On the contrary he mentions and depicts the ends of the frame rods as projecting free and without protection, beyond the wicker skirting. He also shows these projecting frame ends as double and in some cases treble. Although loth to come to such a conclusion, I am of opinion that his figure is inaccurate as also his description to some extent. In every example that has come under my notice of the Boyne curragh and of other Irish types, a definite gunwale is invariably present. It is obvious, also, that to cut off and protect the ends of the frame rods is an elementary precaution to avoid damage to the nets in use. As for the pictured prolongation of both units in each frame through the gunwale wickerwork, this is contradicted not only by all existing examples of this type of curragh, but also by what is seen in the sea curraghs of the Rosses and Sheephaven, where, as in the Boyne curragh, each transverse frame or rib is made up of two coupled units; in all of these the thin end of each unit is invariably cut off a little way below the adjacent gunwale. Another of Wakeman's statements that is contradicted by present-day practice is that where he says that the hide used is untanned. He also states that the framework is of willow withies, but so far as I can learn the withies now used are of hazel; these are cut in autumn as soon as the leaves fall and are then dried and stored to season until the following January when the curragh-making season begins.

Some of these discrepancies may be due to changes in method since 1848 or to different methods favoured by different builders, but some are definitely mistakes.

A belief is widely held that the Boyne type of curragh was at one time in use on many other rivers in Ireland. This hypothesis may be true, but the evidence for it at present available is extremely scanty and applies almost wholly to streams within the confines of Ulster. One lady, 82 years of age, has informed Major H. F. M'Clintock, of Ardee, Co. Louth, that she clearly remembers a round curragh in use for net fishing on the Foyle at the junction of the Mourne river, at Strabane, Co. Tyrone; it was black in colour (? canvas covered) and carried two men.

Other evidence kindly communicated by Colonel R. G.

Berry, of Newcastle, Co. Down, points to the survival of river curraghs on certain inland waters in the east of Ulster, down to the end of last century. In 1896–8 they appear to have been in use for ferry purposes between Omeath and Warren Point, at the head of Carlingford Lough. They also appear to have survived on several streams in the Lough Neagh neighbourhood, for Colonel Berry saw some at the mouth of the Blackwater River, Co. Armagh, about the same time, while at Toome Bridge it is said that they were employed for fishing. There is also a dim recollection of their presence last century on the River Bann. Whether these are indigenous local occurrences or are modern borrowings (curragh purchases) from the Boyne is uncertain; it is hoped that the present notice may elicit further and more definite information on the former distribution of the river curragh.

The most notable instances of the use of the curragh on rivers outside the Boyne and the Ulster area are (*a*) that where O'Sullivan Beare crossed the Shannon in skin-covered curraghs during his retreat in 1602, and (*b*) a note by Wakeman of their presence above Lough Ree about 1850.

Dimensions

	Ft.	In.
Length, overall	6	0
Beam amidships	4	5 (outside)
Depth amidships	1	5
Height: at fore-end (outside)	1	7¼
amidships (outside)	1	5¾
at stern (outside)	1	5¼
Distance from fore-end to fore-side of seat	2	7
Distance from after-end to after-side of seat	2	7

Seat, 49 in. long by 10¾ in. wide and ⅞ in. thick, fitted 1⅛ in. below the top of gunwale.
Woven skirting below gunwale, 4–5 in. in depth.
Meshes of the latticework bottom approximately square, 5–6 in. across.
Distance at each end from the outermost rib frame to the head and the stern respectively, 13 in.
Paddle: length 3 ft. 10 in. overall; blade 25 in. by 5½ in., ½ in. thick at centre; loom 19½ in. long, diameter 1½ in.; crutch grip 4 in. long, diameter 1½ in.

The above measurements of a typical present-day Boyne curragh were taken during a recent visit to Ireland from a fine

example in the National Museum, Dublin (see Pl. III, fig. 2). This was made by the late Michael O'Brien, the last of the fully skilled curragh builders of Oldbridge. Curraghs are still being made, but it is doubtful if any will ever again be made so skilfully as those made by O'Brien. It is to be noted, however, that in the curragh figured the protective strip of cloth usually placed over the gunwale in the median and after regions is wanting.

When newly made the two ends in plan have nearly the same curvature; with use, the fore-end tends to broaden as its sides are not held rigid as are those of the after-end by the cross bracing of the net platform; this causes the curragh to assume gradually a slightly ovate form, more or less marked according to the treatment it receives.

The Curraghs of Donegal

In the wild Rosses district of the west coast of Donegal and in the outlying islands of which Tory Island is the most notable, is still to be seen the crudest and most primitive type of the sea-going curragh in spite of the adoption of several modern refinements.

Eighty years ago this type was still in its rudest stage, the frame built up of withy ribs and stringers and covered with untanned hide. To-day the withy framework is replaced by a lattice frame of sawn and planed laths, while the cover, still retaining its original name of "hide", is now made of two layers of tarred cloth. In Tory Island, side by side with the survival of modified craft of this kind, are to be seen many wherein a close approximation has been made to the form and construction of a wood-built dinghy.

Taking the designs as they were at the middle of last century, together with those in use at present, we have a perfect evolutionary gradation from a short and squat one-man paddling type, without keel and without thwarts, to an elongated boat-shaped design provided with permanent thwarts and rowed with oars pivoting on thole-pins. Some of medium size are fitted with a definite and markedly salient false keel; in many

instances a "runner" under each bilge is added to facilitate beaching without damage to the canvas bottom.

The series may be conveniently divided into two groups:

(*a*) the short curragh types from 8 to 12 ft. long, and

(*b*) the elongated boat types, usually between 15 and 20 ft. in length.

Group A. Short curraghs under 12 ft. long

(*a*) *Paddling curraghs.*

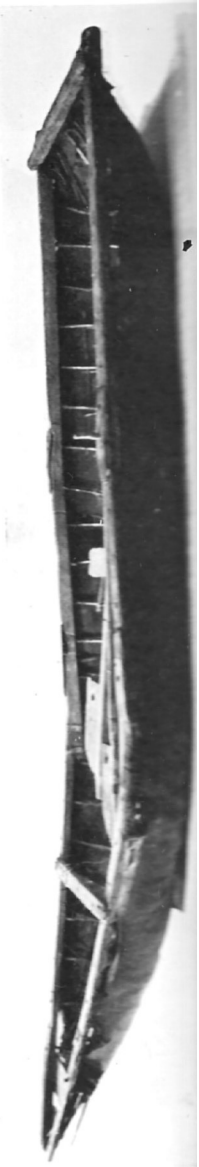
These, as they exist to-day, continue to be small in size as of old, for their propulsion depends primarily upon the exertions of a paddler kneeling at the fore-end. Usually, however, a second man sits on the bottom at the stern, steering and helping the craft along with his paddle as necessary. The smallness of the crew restricts the size, which varies between 8 and 9 ft.; the beam is about $3\frac{1}{2}$ ft., and the depth less than 2 ft.

The shape in plan of these curraghs is that of a blunted ogive arch, with the sides nearly or quite parallel, apart from the bow region; the stern is truncate. The fore-end is extremely bluff, rounding below very abruptly into the bottom which is transversely curved.

The gunwales are made of stout scantling almost horizontal throughout as there is but faint sheer in the bow region. This bow or shoulder region, as it is preferable to call this very characteristic feature in all sea curraghs, is formed on each side by a curved shoulder piece whereof the hinder-end overlaps the fore-end of the adjoining side gunwale; in front, the present fashion is to key together the two shoulder pieces by an overlapping breast hook (Text-fig. 2). All these overlap joints are usually pinned together with trenails. In the old type of last century, instead of a breasthook, the fore-end of one shoulder piece sometimes overlapped the other obliquely, the joint secured by cord lashing.

At the stern the after-ends of the gunwales are connected and held in place by a transom bar; to-day this is countersunk flush; in the old type the ends were generally nailed over the gunwale ends and only partially countersunk.

PLATE III



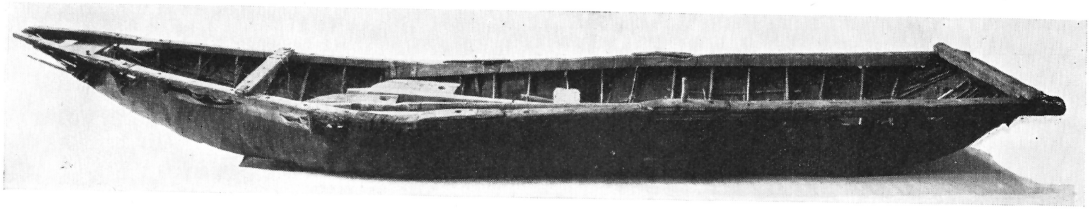


FIG. 1. AN OLD ROWING CURRAGH FROM MULROY BAY, DONEGAL

By courtesy of the Director, Liverpool Museums

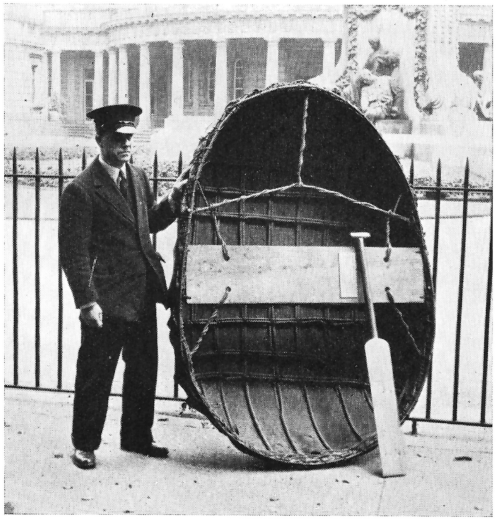


FIG. 2. A BOYNE RIVER CURRAGH WITH ITS PADDLE

Photo by J. Hornell, 1936

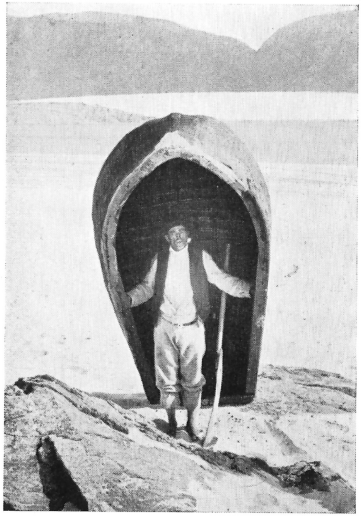
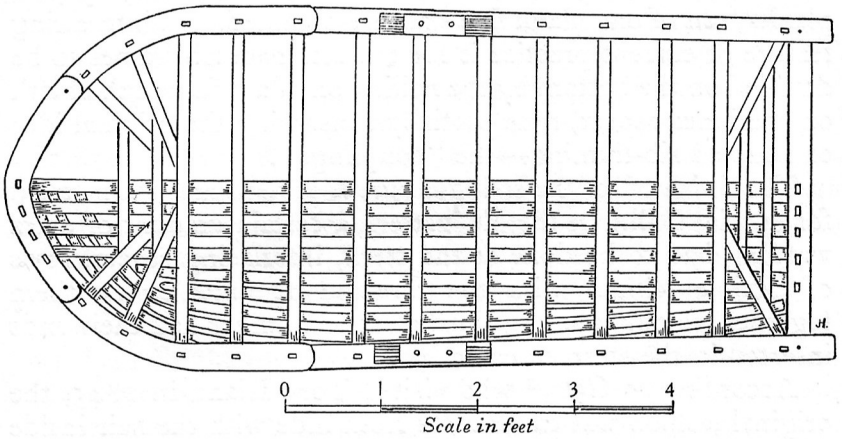


FIG. 3. OLD TYPE OF PADDLING CURRAGH WITH DOUBLE WITHY RIBS; ROSSES DISTRICT, DONEGAL

By courtesy of Mr T. H. Mason, Dublin

Originally the body framework was made of hazel or willow wands, used double. After the gunwale frame was assembled and pinned together, it was turned over, underside uppermost; with the aid of a red-hot iron rod or even by means of a glowing ember as one old man informed me, holes of about $\frac{1}{2}$ in. diameter were bored at intervals of about 8 in. Into these holes along each side the butt ends of the wands were inserted, just as in the making of a Boyne curragh we saw them driven into the ground around the circumference of a traced ellipse. When the complement was complete the builder, according to Lord



Text-fig. 2. Plan of a Donegal (Bunbeg and Tory Island) paddling curragh. This particular one has a pair of thole-pin cleats on the gunwales to permit the use of oars when necessary.

George Hill,[1] wove a skirting band about 6 in. deep some 6 or 7 in. distant from the gunwale (cf. the skirting wickerwork in the Boyne curragh). Then, beginning at the stern, he bent the two last withies inward, one from each side, overlapping them for more than two-thirds of their length, and bound them together after adjusting the bilge bends to the required angles. In this manner he worked on until all were made fast to form a series of rude transverse rib-frames. These were called "couplings" from being formed of double withies; it is note-

1 *Facts from Gweedore*, 2nd ed., Dublin, 1846. (A rare pamphlet.)

worthy that the name persists to-day although the frames are now formed of single laths.

Longitudinal stringers were next added on the outer aspect of the ribs, in similar manner; these were tied to the ribs at each point of intersection with twine or with horsehair cord.[1] In later days a few cloven laths were substituted for the principal stringers—those of which the ends were inserted into the stem and stern regions of the gunwale frames. Still later all the stringers were formed of laths, although the ribs continued to be of doubled laths until the beginning of this century. To-day both ribs and stringers are of planed laths, sawn from 9 by 4 in. planks; out of one plank five slats are obtained. An interesting feature of current practice is for five alternate rib-frames to be doubled on the bottom by the nailing on of a 3 ft. length of lath on the inner aspect, thus partially conserving the original idea of doubled rib-framing—the "couplings".

The finish off of the stringer curves at head and stern called for special skill. In the old pattern a certain amount of extra wattling had to be done at the stern, interlacing several rows of flexible withies with the fore-and-aft units to tie them together, as only about a third of their number had their ends inserted in the stern transom bar.

According to Getty[2] who visited Tory Island in 1845, the original fashion was to draw "a fresh hide with the hair inside over the skeleton, and, being laced with thongs to the gunwale, became rigid as it contracted in drying. At present, a cheaper material is found in tarred canvas, manufactured from flax or hemp spun by the women, and which is considered of superior strength to what is purchased at a warehouse.... To render the canvas secure it is made double, and tarred; a layer of brown paper being generally inserted between the two portions.... Cattle are transported across the sound in these boats; they are so light that a man easily carries one on his back."

The nature and amount of cargo sometimes carried by these small curraghs is extraordinary. Hill (*loc. cit.*) states that cattle

1 Hill, Lord George, *loc. cit.*

2 Getty, Edmund, "The Island of Tory: its history and antiquities", *Ulster J. Archaeol.* 1, 27–33, Belfast, 1853.

are sometimes transported: "The animal is thrown down on the land, its legs tied, lifted into the corragh, and laid on its back, making it fast by ropes, then the corragh is carried into the water." An instance of the reckless daring of the islanders in the way they load their curraghs is instanced. "A man and his wife coming out of the Island of Arranmore, in a little boat filled with turf, had his horse *standing on top of it*; with the roll of a sea, the animal was thrown out, and as they were a long way from land, must have been drowned, had not the man cleverly succeeded in getting him into the boat again."

In curraghs of this design made at the present day there are few noticeable improvements apart from the substitution of sawn ribs and stringers for a framework of withies, and the nailing together of these at all crossing points instead of being lashed with cord or thin withies. The cover continues to be made of two cloth layers, but it is usual for the inner one to be of coarse sacking with the outer of any available thin cotton cloth; sugar bags often serve for the one, discarded flour bags for the other. Both layers are tarred separately, and an intermediate layer of brown paper is still occasionally employed.

Usually the gunwales project a few inches beyond the stern transom as two short horns useful on which to rest the curragh in order to save the cover from damage when up-ended to dry or to load up for carrying. The fisherman transports it on land upon his back, resting his hand against the inner edges of the gunwales about mid-length. Seen from behind a curragh in transit over the rocky foreshore suggests a monstrous black beetle or the testudo of a Roman storming party.

The paddle has two forms, an older and a later. The older, still in general use, is usually made out of an old spade handle lashed to a blade made from a fragment of a packing case (Text-fig. 1 *c*). This blade is parallel-sided, with long tapered shoulders. It is fastened to the overlapping end of the loom by an iron band or by a staple clenched on the fore-side a few inches from the tapered proximal end which is lashed tightly to the loom with twine. The blade is slightly curved backwards longitudinally. Dimensions: overall length 55 in.; loom 25 in.

long by 1½ in. diameter; blade 23 in. long by 4½ in. wide; shoulders 5–6 in. long; crutch 4 by 1½ in.

The newer type is slightly shorter, with blade and loom in one piece—a refinement of the old design. Length 52 in. overall; blade 26 by 4½ in.; shoulders 3 in. long; crutch 4 by 1½ in. (Text-fig. 1 *b*).

(*b*) *Paddle and oar curraghs.*

Not infrequently the paddling curragh is adapted to the use of both paddles and oars. For this purpose it is usually made slightly larger. The one measured at Bunbeg was 8 ft. 6 in. in overall length by 44½ in. beam. This I am told is the usual size (see Pl. IV, fig. 2).

These curraghs are made with rather more care than those intended solely for paddling. The stringers in particular are notably finished off with precision and regularity at the ends, in contrast to the rough slipshod way seen in many paddling curraghs.

The additional features found in these better-class craft consist of:

(*a*) A seat stringer made of a batten, 22 by 2 by ½ in., nailed amidships to five of the ribs on each side, 5 in. below the upper edge of the gunwale.

(*b*) A thole-pin block, 14 in. long, by 2 in. high and 1½ in. thick, on each gunwale just abaft of mid-length. Two holes are bored in each to take a pair of slightly tapered thole-pins.

(*c*) Usually the margin of the tarred cover, nailed to the outer edge of the gunwale frame, is covered and protected by a narrow beading.

When rowed, a loose seat is fitted across the hull with its ends upon the nailed-on seat stringers.

The oars used are of ordinary boat pattern and length.

(*c*) *Rowing curraghs, dinghy type.*

In Tory Island during recent years, many of the fishermen have substituted canvas-covered copies of a yacht's dinghy for the old type of paddling curragh (see Pl. IV, fig. 1).

The transverse sectional curves of the new type follow the

FIG. 1. THE BEACH, TORY ISLAND

Two old type paddling curraghs between two modern type keeled rowing curraghs; one has bilge runners

By courtesy of Mr T. H. Mason, Dublin

FIG. 2. A PADDLING CURRAGH, BUNBEG, DONEGAL

Photo by J. Hornell, 1936

FIG. 1. A TWO-MAN ROWING CURRAGH, DUNFANAGHY DONEGAL

FIG. 2. TWO DUNFANAGHY CURRAGHS BOTTOM UP

Photos by J. Hornell, 1936

usual flattened U-curve of their predecessor. The fore-end is sharp with a nearly vertical cutwater, abruptly curving below into the flattened bottom. The bows are strongly sheered so that the height at the head is considerably greater than at the stern. The curves of the after-end adhere closely to those of the paddling curragh, and the two horizontal stern horns there seen are also present. A common size is 11 ft. in length by 3 ft. 8 in. beam amidships, with a depth there of 18 in. Towards the stern these curraghs run lean, the beam diminishing there to less than 3 ft.

The framework follows the design of the older paddling curraghs. The frames are sawn and planed hardwood laths, $1\frac{1}{4}$ by $\frac{1}{4}$ in. section, spaced apart about 9 in., and number twelve. The stringers consist of forty-one deal laths, about the same sectional size, so closely set that some touch their neighbours laterally while the rest are separated by a maximum distance apart of $\frac{3}{4}$ in.

Over the stringers is stretched the usual double cover of tarred cloth, nailed along the upper edges of gunwales and transom bar with the margin concealed by a narrow batten or beading.

The ends of the frames are mortised into the gunwales in ordinary curragh fashion, whereas the ends of the main stringers are nailed at the fore-end to an internal stem bar or apron, and at the stern only the three main ones are mortised into the upper or main transom bar which is characterized by being curved outwards; the other stringers are nailed to the fore-side of a lower transom bar placed about 11 in. below gunwale level.

The gunwales are of scantling of $2\frac{1}{2}$ by $1\frac{1}{2}$ in., increased slightly in the bow region. 9 in. abaft each thwart, of which there are two, a rowlock cleat is fitted on the gunwale at each side, pierced by a single hole to take an iron rowlock.

The thwarts, steadied by wooden knees in usual boat fashion, are fitted to rest on a special stringer nailed to the inner face of the ribs for this purpose. In addition a loose seat is fitted right at the stern, $7\frac{1}{2}$ in. below the gunwale.

A false keel, a false stem and a false sternpost are always present, nailed or bolted as may be suitable to the framework

upon the outer side of the tarred cover, which has to be put on prior to the fixing of these accessory parts. In many, probably the majority, a runner, 1 by $\frac{7}{8}$ in., is fitted under each bilge. The two extend from near the stern to a short distance forward of midships.

The false keel usually increases in depth toward the after-end, ranging from about $1\frac{1}{4}$ in. at the fore-end to 2 in. aft; thickness $\frac{7}{8}$ in. The false stem and sternposts run about 1 by $\frac{7}{8}$ in.

No rudder is present.

Principal Dimensions of Donegal Curraghs
Short Type

	Paddling curragh, Bunbeg (Rosses) Ft. In.	Paddling and rowing curragh, Bunbeg Ft. In.	Rowing curragh, Tory Island (modern type) Ft. In.
Length overall	8 4	8 6	11 6
Beam: at shoulder splice	3 7	3 9	3 8
amidships ...	3 $6\frac{1}{2}$	3 $8\frac{1}{2}$	3 8
at stern	3 $6\frac{1}{2}$	3 6	2 11
Height: at fore-end ...	1 9	1 10	2 $10\frac{1}{2}$
amidships ...	1 $8\frac{1}{2}$	1 $9\frac{3}{4}$	1 $10\frac{1}{2}$
at stern ...	1 8	1 $9\frac{3}{4}$	1 $10\frac{1}{2}$
Length of bow region ...	3 3	3 2	3 11
Depth amidships ...	1 $8\frac{1}{4}$	1 $9\frac{1}{2}$	1 7
Gunwale, section ...	3 by $1\frac{1}{2}$ in.	3 by $1\frac{1}{2}$ in.	$2\frac{1}{2}$ by $1\frac{1}{2}$ in.
Thwarts, number ...	Nil	1 (loose)	2 + 1 loose
Complete transverse frames (ribs), number ...	10	10	12
Spaced apart ...	*c.* $7\frac{1}{2}$ in.	7–$7\frac{1}{2}$ in.	$8\frac{1}{2}$–$9\frac{3}{4}$ in.
Stringers, number ...	22	21	41
Spaced apart ...	1–$1\frac{1}{8}$ in.	1–$1\frac{1}{4}$ in.	0–$\frac{1}{2}$ in.
Section	$1\frac{1}{2}$ by $\frac{1}{4}$ in.	$1\frac{1}{2}$ by $\frac{1}{4}$ in.	$1\frac{3}{16}$ by $\frac{1}{4}$ in.

Group B. Long, rowing curraghs

Formerly these were to be found in all the sheltered bays of the district. At present they are restricted almost entirely to Sheephaven, where a number are in use at Dunfanaghy and the Downings.

(*a*) *Ancient type.*

The present type differs only in details and in more careful construction from that in use last century; lath stringers for withy ones is the one major improvement. The only example that exists is one in the Liverpool Museum. This comes from Mulroy Bay to the east of Sheephaven; it may be taken as the archetype of the designs now in use (see Pl. III, fig. 1).

The length is 16 ft. 9 in. overall, with a beam at the shoulder splice of $3\frac{3}{4}$ ft.; abaft this it narrows gradually to $3\frac{1}{4}$ ft. at the stern; depth 19 in. In profile and general appearance the design suggests relationship to the Scandinavian praam. Both have the same rounded, keelless bottom, with long, gently curved up fore-end, somewhat spoon-shaped, ending in a pointed stem. As usual in curragh design, the after-end curves up roundly from the bottom to end in a truncate stern.

The gunwales, bow or shoulder pieces and stern transom bar are similar to, but more roughly made than in the current design which is described below in detail. To increase the thwartship strength, a stout cross-beam is nailed upon and connects the two bow-gunwales at two-thirds their length from the fore-end. This cross-beam persists in the present-day Downings type but is absent in that of Dunfanaghy, where its bracing purpose is adequately served by making the fore-thwart a fixture. In this old type both of the two thwarts present are loose; their ends rest upon short sticks tied to the ribs about 6 in. below the gunwales. Two men rowed with oars of precisely the same kind as continue to be used; thole-pins and blocks were also similar.

The framing in its broad constructional principles is identical with that of the Boyne curraghs. Broadly U-shaped frames spaced apart about 8 in. are held in place by an outer and more closely set series of longitudinal stringers, the two series tied together with string at all points of intersection. Both ribs and stringers are of double withies; the butt end of one withy in each pair is passed through a hole bored or burned in one gunwale, that of the other through a parallel hole in the opposite one.

(*b*) *The Dunfanaghy curragh.*

The Sheephaven fishermen living at Dunfanaghy employ a type of curragh which serves excellently as an example of the transitional stage between the older types of curragh distinguished by the complete wattling of the framework and those modern ones where sawn laths wholly replace withies.

These craft run from 15 to 20 ft. in length; a typical example is 16½ ft. overall, with an outside beam of 48 in. at the first thwart, decreasing gradually to 46 in. at the stern. Average depth 22 in. Height at fore-end 28 in.; at stern and amidships 22 in. The plan and profile are similar to the old type already described, and as all the bow-frames are deeply rounded in U-fashion, the bow region remains rounded right to the pointed nose (Pl. V, fig. 1).

Each gunwale is in two sections, a straight main section, 10 ft. 3 in. long, and a curved and strongly sheered bow or shoulder section, 6 ft. 3 in. long. Both are of 3 by 1⅝ in. scantling. These have the joining end (additional length) thinned down and overlapped to form a simple scarf splice—the shoulder splice (Text-fig. 3). The overlying connecting key-piece used for "fishing" the joint, universal in curragh design in Connaught and Munster, is never used here; the fishermen consider that it diminishes flexibility and so makes the frame too rigid!

The fore-ends of the bow gunwales are bevelled to meet in the median line to form the "nose". Instead of a breasthook, a stout bar is nailed connecting them, a few inches behind the nose, on the under side; it serves also as a fitting to make fast an anchoring rope in the bay and a holding down rope against the wind, when the curragh is turned bottom up on land (Pl. V, figs. 1 and 2).

At the after-end the gunwales are connected by an over-lying transom bar, nailed on at each end; it may or may not be notched at the ends to fit lower on the gunwales.

The inner framing of the bottom and sides consists of transversely disposed double withies, called "couples", similar to those of the old type already described; they are cut from hazel wands of ½–¾ in. diameter and the bark is left on. In two

curraghs examined the numbers were 19 and 20 respectively, spaced apart 8½ in. In addition a single straight withy is tied across the stringer ends on the outside just below the stern transom bar.

The stringers, outside of the frames, 17 in number and from 2 to 2½ in. apart, are of 1 in. wide sawn laths except toward each end where they are replaced by single stout hazel rods, the junction or overlap of lath stringers and withy continuations being made under the third withy from each end. Each length of stringer is tied to the frames by a continuous cord which makes several turns and a half-hitch at each crossing and then passes in a fore-and-aft direction to the next one.

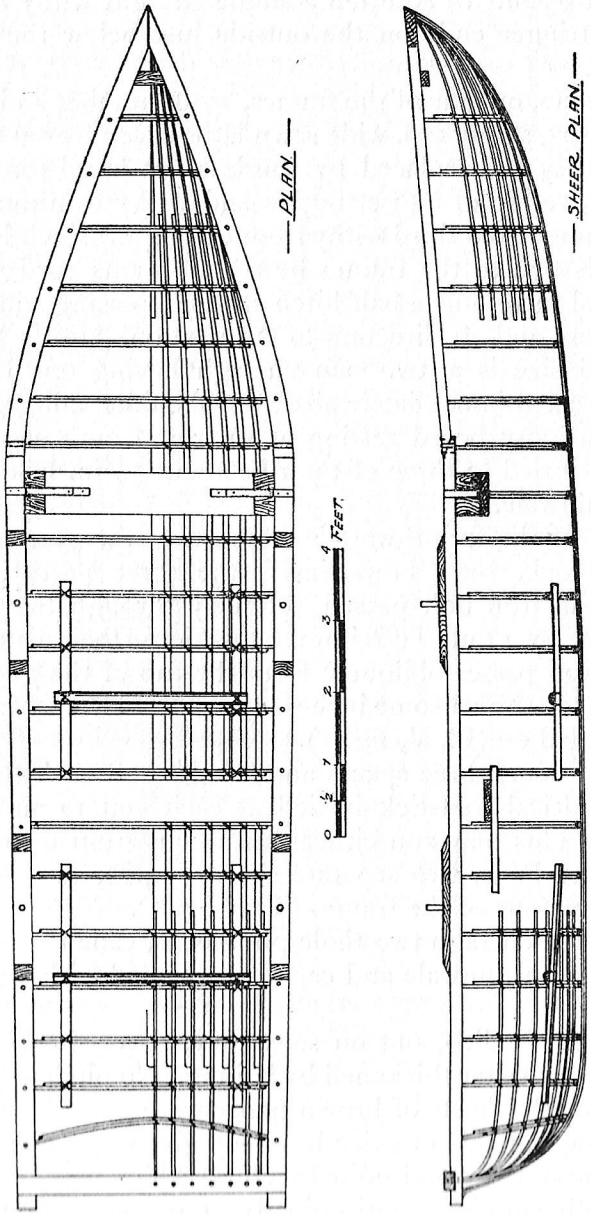
The usual size is a two-man curragh having one thwart permanently fixed immediately abaft the shoulder splices, with the second a loose board resting at each end on a short bar (a "hinging") tied to three of the ribs about 7½ in. below the top of the gunwale.

Each end of the fore-thwart is attached to the gunwale by a slanting block, the "bowstring", the three parts bolted together by an iron bolt passed obliquely through them and secured below by a nut. To reinforce this tie further, a strap of galvanized iron passes obliquely from the top of the gunwale to a point on the thwart some inches inward from the bowstring and there nailed on (Pl. V, fig. 1).

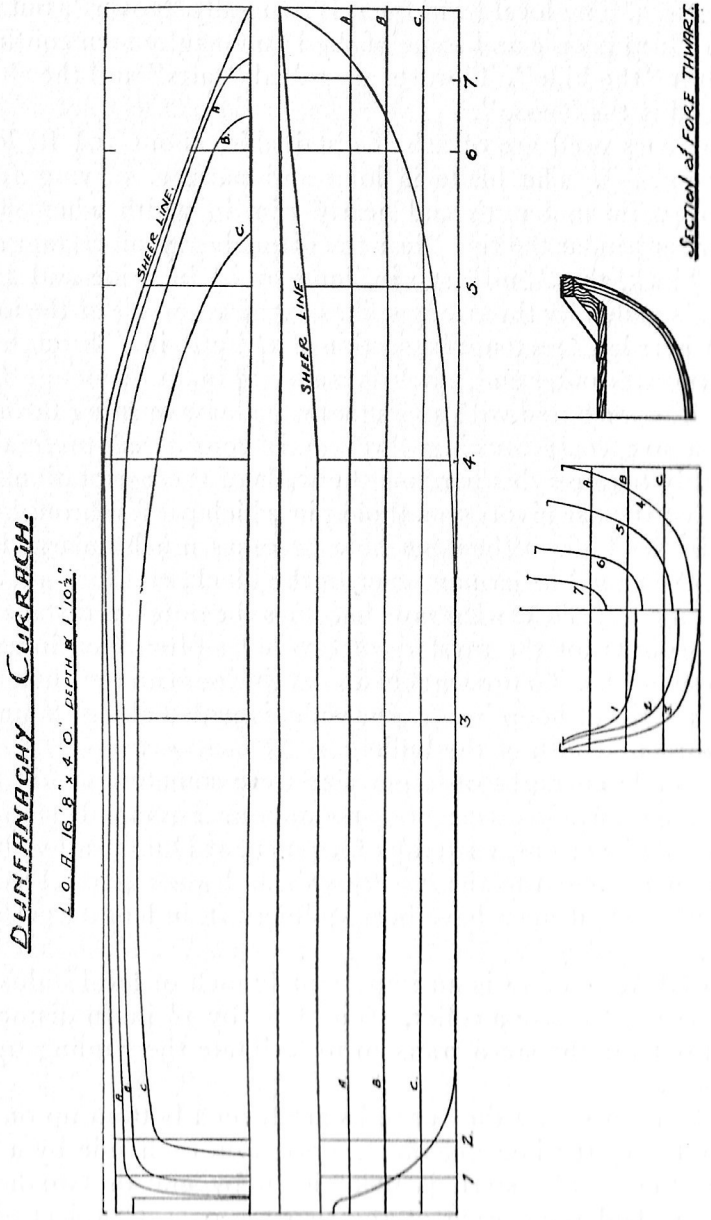
Across the floor, three spaces and a half abaft each thwart, a stout cylindrical footstick is tied at each end to an inner stringer bar. This may run either continuous from below the first thwart, or be in two separate short lengths, each lashed across three or four of the frames (Text-fig. 3).

In a two-man curragh two thole-pin blocks, called "cleats", are fitted on each gunwale and each is furnished with a single thole-pin.

Two layers of calico, put on separately, cover the bottom. Each is coated with tar thickened by boiling. No pitch is mixed with it. Formerly sheets of brown paper were placed between the two layers, but this practice has been given up. The outer layer is put on in two longitudinal sections which may be made either of cloth running longitudinally or of short transverse



Text-fig. 3. Plan and elevation of a rowing curragh belonging to Dunfanaghy (Donegal). Drawn by P. J. Oke from plans and measurements made by J. Hornell in 1936.



Text-fig. 4. Lines of a Dunfanaghy curragh.

pieces. In both cases the main seam runs down the middle of the bottom. The local term for it is generally "cover", but the Horn Head people and some of the Dunfanaghy men continue to call it "the hide". Thwarts are called "tafts" and the sharp fore-end is the "nose".

The oars used are of ash if obtainable, about 10½ ft. long (Text-fig. 1*d*). The blade is long and narrow, varying from 36 to 40 in. in length and nearly 3 in. in width when new; thickness ⅞ in. at the tip. Near the grip a heavy subrectangular pivot block, the "bull", 19 in. long by 6½ in. wide and 2 in. thick, is nailed by three long spikes to the after-side of the loom which here has a rectangular section of 2½ by 1⅞ in. Through the bull, near the outer end, a hole is made, 1¾ in. in diameter. This may either be bored with an auger or made by burning through with a live coal; burning through is considered preferable, probably because this hardens the walls of the perforation.

In use the oar pivots on a thole-pin which passes through the hole in the bull. When the hole becomes much enlarged by wear, the frugal fisherman reverses the block, end for end, and makes a new hole at what now becomes the outer or distal end; this accounts for the mystery of two holes often seen in some of these blocks. To prevent chafing of the loom on the thole-pin cleat, a strip of hoop iron, 1 in. wide, is nailed along its under side for the length of the bull.

Formerly curraghs of larger size were sometimes built and three-men curraghs were not uncommon. I remember seeing a specially large one, rowed by four men, at Dunfanaghy about 1890; it belonged to the coastguards and was regarded as the local lifeboat; it must have been quite 20 ft. in length, perhaps more.

As lobster fishing is an important branch of local industry, some curraghs have a roller, 20 in. long by 1½ in. in diameter, fitted outside the stern transom to facilitate the hauling up of the pots.

When not in use the curraghs are turned bottom up on the ground with the bow region supported on each side by a few large stones. The stern is held down by one or two heavy boulders laid upon each of the two horns that project abaft

the stern transom (Pl. V, fig. 2). The fore-end is anchored down by a large stone tied to the end of a rope which at the other is made fast around the transverse bar immediately behind the pointed nose.

The price of one of these curraghs ranges from £4 to £5.

(*c*) *The Downings curragh.*

A fine example of a two-man curragh from this place is possessed by the National Museum, Dublin. As its locale is within a few miles of Dunfanaghy the general design, as may be expected, is closely related, with, however, some notable divergences. Its length is just 14½ ft. overall with a beam ranging from 44½ in. at the shoulder splice to 40 in. at the stern.

The chief differences consist of:

(1) The use of a tie-beam across the shoulder region, 3½ ft. abaft the fore-end. In this it agrees with the design of the old curragh from Mulroy Bay.

(2) The stringers, nineteen in number, are wholly of cleaved laths in rather short lengths; in most instances three, with their ends overlapped and tied, are necessary for each complete stringer; no terminal lengths of withy are present. Eight only of the stringers mortise into the stern transom bar.

(3) The stern framing is strengthened by a horizontally placed U-frame, placed 8½ in. below the transom.

(4) The thwarts are both loose, resting upon shaped bars slung by stout cord from the upper ends of the ribs just above the uppermost stringer. The first pair of these thwart rests are slung from the seventh and eighth ribs, the second pair from the twelfth and thirteenth ribs.

As in the Dunfanaghy design, the rib-frames are of double withies. The oars and rowing fittings are also similar.

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THE CURRAGHS OF IRELAND

By James Hornell

Part III

County Sligo

FORMERLY curraghs were in use both on the mainland of this county and in Inismurray, and we have an interesting account by Beranger in his *Tour of Connaught*,[1] published in 1779, of how the first thing that attracted his attention when visiting Inismurray was a curragh made of basketwork, covered with the hide of a horse or a cow. He says: "As the members were six or eight inches apart and the sun was shining bright, and the skin transparent, it seemed to me to be a vessel of glass, as I could see the water through it."

The truth of this curious statement of the transparency of the hide receives collateral confirmation in two passages in Bishop Heber's Indian Journal.[2] In these he mentions with interest that shields carried by certain Baroda cavalrymen were covered with "rhinoceros-hide as transparent as horn". The presumption is that such hide was used untanned.

County Mayo

Following the west coast southward from Donegal, the next distinctive curragh centres to-day are found in county Mayo. Here, and more particularly in the little fishing harbours of the Mullet, Blacksod Bay, Achil Island and the small isles off coast, the curragh continues to flourish as the craft most favoured in use by inshore fishermen.

These curraghs, together with those to be described from Connemara, differ from all other Irish types; instead of narrow stringers forming the outer members of a latticework frame, the bottom and sides are completely covered with thin planking

1 "Memoir of Gabriel Beranger", by Sir W. R. Wilde; *Journ. of the Roy. Hist. and Arch. Ass. of Ireland*, 4th series, I, 135; III, 459.

2 *Narrative of a Journey through the Upper Provinces of India . . . in* 1824–25, 3rd ed., III, 2 and 5.

due to the broadening of the stringers used and the consequent suppression of intervals between them.

Two types of this plank-bottomed design are to be distinguished in county Mayo: (*a*) the Blacksod and Iniskea type, and (*b*) the Achil type. The essential difference between them lies in the presence of a single gunwale in those of the first type (Pl. I, fig. 1), whereas in those of the second there are two, an upper and a lower, the two forming a specialized gunwale frame (Pl. II, fig. 3). Both types are characterized by the substitution of comparatively broad-bladed feathering oars for "bull-oars" pivoting on a single pin as used in Donegal, Connemara, Aran, Clare and Kerry.

A. *The Blacksod and Iniskea type*

The curraghs of this type admirably illustrate an important phase in the course of curragh development. In the simplicity of the gunwale construction it serves, as we shall see, as a link between the primitive design of the Sheephaven type and that of the elaborate double gunwale characterizing all curraghs to the southward of Blacksod Bay, just as the Sheephaven and Mulroy designs elaborate that of the Rosses and Tory Island. The same relationship is expressed in various minor details; these include the use of ribs formed of halved ash branches, of a shoulder cross-bar, of massive blocks as thwart knees and of a loose thwart.

Description. The example measured belongs to a man who had brought it from Iniskea. It is a two-man rowing curragh, 17 ft. 7 in. in length with a beam, outside, of 46 in. amidships, decreasing to 44¼ in. at the stern. Height from the ground at the fore-end, 45 in., while amidships and thence to the stern it is 22 in. Depth, 21 in. to top of gunwale.

In general design it approaches closely to the Sheephaven and Mulroy type but its bottom and sides differ by being fully planked in; other points also show minor advances in the curragh-builder's art. The fore-end is sharp, for on each side the two uppermost bow stringers are nailed to a thick vertical board, the stem block, 20 in. long by 1½ in. wide and nearly the same in thickness. Each of these stringers is from 2 to

2½ in. wide at the fore-end, decreasing to a point where it ends under the shoulder splice.

The main gunwales are of squared deal, 3 by 3 in.; each is overlapped forward by the bevelled end of the shoulder or bow gunwale, at a distance of 6 ft. from the stem. The weak shoulder splice is supplemented by a cross-bar, "the centre stick", or *maide droma*, 2¾ by 2¼ in., notched below at each end to fit upon the gunwale just behind the splice. The junction of these three parts is made secure by the nailing over it of a shaped shoulder key-piece. The bow gunwales meet in the median line above the stem block to which they are nailed.

The stern gunwale is a stout cross-bar curving outwards, 2½ by 2½ in., partly countersunk into the ends of the lateral gunwales. Below it is a narrower added piece, 2 by 2 in., to which the ends of the five median bottom planks are nailed on the under side. The aftermost rib-frame, 17 in. below the stern gunwale, forms the lower boundary of what we may consider the equivalent of a transom stern (see Plan 2).

The framing consists of 24 rib-frames, called "hoops", set about 9 in. apart, centre to centre. To these are nailed on the outside fifteen thin planks, averaging 4 in. in width, set edge to edge; these replace the stringers of Donegal curraghs. The hoops are halved ash branches, the rounded side outer. To these the skin planking is fastened by "cot" or boat nails. The ends of the hoops are whittled down and driven into cylindrical holes bored in the gunwales. Wedging from above keeps them from slipping. Calico sheeting, made waterproof by the application of boiled tar, covers the entire hull on the outside. This substitution of cloth for hide is of long standing; in a work published in 1837,[1] a curragh seen in Achil Sound is described as "covered with canvas rendered waterproof by a coating of tar and tallow".

Two thwarts are present, 7½ in. wide; these rest at each end upon a long fore-and-aft inner stringer, "the ribbon", 1½ by ½ in., nailed over the ribs, 7¾ in. below the upper surface of the gunwale. The fore thwart—the slip seat—rests loose on the

1 *The Irish Tourist; or, The People and the Provinces of Ireland*, p. 73. London, 1837.

lateral ribbons, immediately abaft the shoulder splice. The after thwart is fixed, nailed to the ribbons. It is further secured and held in place by a massive trapezoidal knee block nailed above against the inner side of the main gunwale and below to the thwart. Abaft each thwart is a rowlock cleat nailed upon each gunwale. It measures 17 by 1 in. Through it and the upper gunwale below two holes are bored, 5 in. apart; into these thole pins are thrust to form a rowlock. Outside the second rowlock cleat on each side of the curragh is nailed a length of stout batten to form a protective band against wear from the frequent hauling of fishing lines.

When not at sea these curraghs are housed bottom up, in low stone-walled pens similar to those used on Achil Island.

The oars with which the men row these curraghs are of ordinary pattern. No "bull" is present and as they work free in the rowlock formed by the two thole-pins they admit of feathering—a modern innovation.

The cost is about £7 each. They are used mostly for lobster fishing and for lining as evidenced by the grooving of the protective batten on the outside of each of the second rowlocks.

B. *Achil Island*

Curraghs are still numerous in Achil Island. At Keel, where typical examples were measured in July 1936, over a dozen lie bottom up each Sunday when fishing is suspended. They rest protected and half hidden in the shelter of low, stone-walled pens. Owing to the sharp sheer of the bows, each shoulder splice has to be supported on a pile of three or four big boulders, while long, flat slabs are laid against each side of the stern with others resting against the fore-end to anchor the light craft fast when tearing westerly gales sweep down upon this bleak and wildly rugged treeless coast.

Two sizes of curragh are built having respectively two and three rowing thwarts; in addition each has a seat at the stern for the steersman, and as a knee rest when hauling up a lobster pot (Plan 1). A typical three-man curragh measures 20 ft. 4 in. in length, with an outside beam of 47 in. amidships, decreasing

FIG. 1. LOOKING FORWARD INTO THE HULL OF AN INISKEA CURRAGH

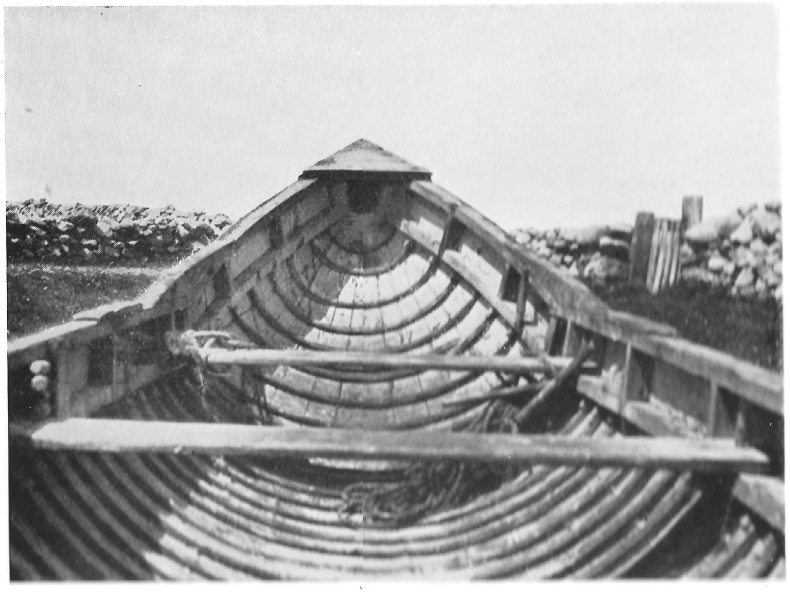


FIG. 2. LOOKING FORWARD INTO THE HULL OF A ROSS-A-DILISK CURRAGH

PLATE II

FIG. 1. AN ARAN ISLANDS CURRAGH UNDER SAIL

FIG. 2. REPAIRING AN INISBOFIN CURRAGH

Some planks removed show the ribs within

Figs. 1 and 2 by courtesy of Mr T. H. Mason, Dublin.

FIG. [illegible] OF N. SCHIL ISLAND CURRAGH LOOKING AFT

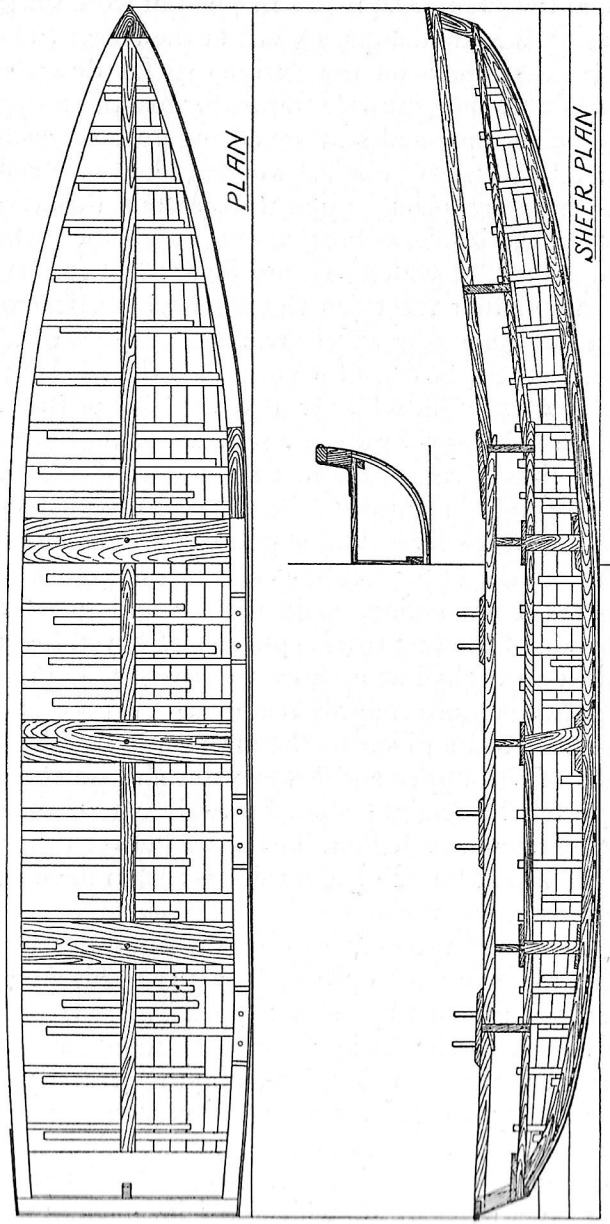
to 44 in. at the stern. Depth, 22 in.; height from the ground at the head, 35 in.; amidships, 23 in.; at the stern, 24½ in.

A notable advance on the designs so far described is the presence of a double gunwale frame, formed of an upper and a lower gunwale separated and keyed together on each side by seven broad and nearly vertical wooden blocks—"standards". Four of these are placed opposite the four thwarts; each is pinned into the gunwale bars, above and below, whereas the remaining three, of which two are forward in the bow region and the third abaft the third thwart, have vertical wing processes on the inner side which overlap the gunwale above and that below. As the beam of the curragh at the level of the upper gunwale is about 3 in. wider than at the level of the lower, the outer edge of the upper gunwale projects 1½ in. beyond that of the lower, thus giving a distinct slant inward and downward to this region. This feature we shall find to be characteristic of construction whenever a double gunwale frame is present.

Each gunwale, upper and lower, is made up on each side of three parts—bow section, main section and quarter section. The junction of the first two is spliced and keyed together as in the Iniskea curraghs but no athwart cross-bar is present. The quarter splice is more roughly made; its purpose is to enable a slight sheer to be given to the after-end. At the stern the after-ends of the upper and lower gunwales on the two sides are connected by straight stern gunwale bars countersunk at each extremity and nailed on. The space between them is filled in with transverse boarding and this part is left uncovered when the canvas skin is put on.

At the fore-end the ends of the bow gunwales are bevelled and nailed to a stout stem block, 6 by 2 in. This stem junction is further strengthened by being capped by a horizontal keying piece of board, triangular in shape, 7 in. along each side.

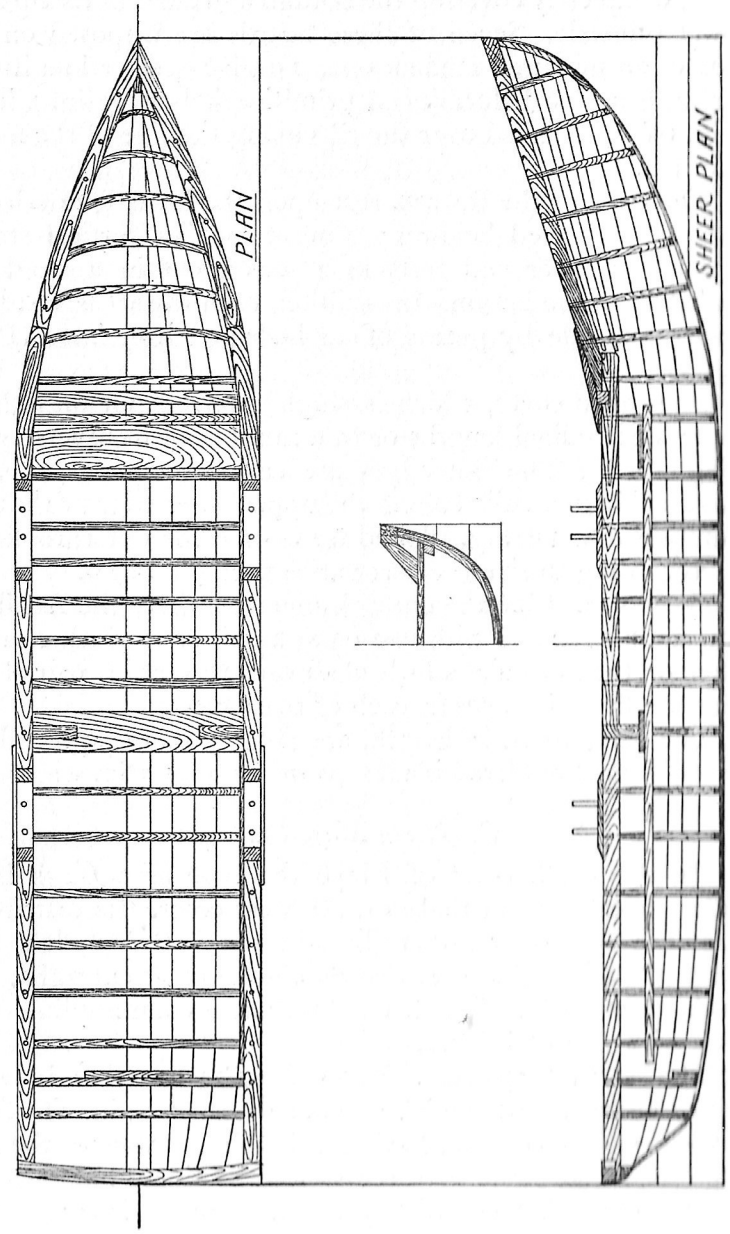
The ribs are generally doubled along the greater part of their length but in an irregular manner. On each side the ends of twenty-three ribs pass through rectangular slots in the lower gunwale and are wedged where necessary. They are either cloven or sawn laths, 1½ in. wide and ¼ in. thick. On the outer side of these, thin boards, ¼ in. thick, are fastened by copper



ACHILL ISLAND CURRAGH
SCALE-1 INCH TO 3 FEET 3 INCHES

James Hornell. 1938

Plan 1.



INISKEA ISLAND. CURRAGH.
SCALE-1 INCH TO 3 FEET

James Hornell 1938

Plan 2.

nails, completely covering the bottom and sides as far up as the lower gunwale. Seven of these boards are disposed on each side of an unpaired median one. To give greater longitudinal strength a board, forming a primitive kelson, 3 in. wide by 2 in. thick, is nailed over the ribs along the line of the median skin plank.

The ends of the thwarts rest upon the lower gunwales and each is supported below by a stout median vertical strut of which the lower end rests in a socket cut in a stout shoe nailed upon the kelson. In addition, each thwart is tied to the upper gunwale by means of an L-shaped iron knee (Pl. II, fig. 3).

The calico cover, which is single, may be put on either in three longitudinal lengths or in a number of transversely running widths. The raw edges are concealed under a narrow marginal batten nailed along the upper outer edge of the upper gunwale after tarring. Boiled tar is used for waterproofing.

According to size the cost varies from £5 to £9.

Propulsion. Like the curragh men elsewhere the Achil men row double-handed with two oars; a pair of rowlock cleats are fitted on the gunwales a little abaft each thwart. A pair of thole pins are fitted in holes in each of these cleats.

The oars, 10 ft. in length, are notably more powerful than usual, with shouldered blades 40 in. long by 3 in. wide.

C. *North Mayo Curraghs*

On the north coast of Mayo the type of curragh in use differs notably from those on the west coast. Its distribution stretches from Ballycastle to Broadhaven, both included. Eastward of Ballycastle fishermen look askance at curraghs, while to the westward, at Broadhaven, we find a commingling of this type with that of Iniskea.

The North Mayo curragh runs from 21 to 23½ ft. in length, with a beam of 4 ft. amidships and a depth of 25 in. The framework is well developed, having a double gunwale of the Achil type—each gunwale in three spliced sections, but instead of the bottom being completely boarded, the stringers, twenty-three in number amidships and averaging 2 in. in width, are

spaced apart from ½ to 1 in. The ribs are hazel half-hoops, fitted as in Iniskea curraghs; another point of resemblance is the presence of a long, curved stemblock, 17 by 1¼ in. Crossing the hull, their ends resting on the lower gunwale, are three fixed thwarts, one loose thwart, a steersman's thwart (abreast the quarter splice) and a cross board at the stern, which is similar in form to the Achil one.

Propulsion. True oars are used, each 16 ft. long, working between paired thole-pins. To protect the loom from wear, a board, 20 in. long and 4¾ in. wide, is nailed on each of two opposite sides, between points 34 and 54 in. from the grip. When the crew go net-fishing the fourth thwart is removed to make room for the nets. Otherwise either three or four hands may row, single-handed and alternate, one on each thwart.

The centre of the North Mayo curragh region is Belderrig, where I counted fifteen curraghs laid up on the beach. One Iniskea curragh had come from Broadhaven to fish lobsters. The crew of two rowed double-handed, with oars (called "paddles") having triangular "bulls" working on single thole-pins.

Connemara and the Inisbofin Islands

The fishermen of the Connemara mainland and the offshore islands in common with their fellows elsewhere on the west coast are noted for their daring. Formerly, besides their curraghs, they possessed a number of open boats built of wood, but in a terrible storm a few years ago, almost the whole fleet perished, with the loss of many lives. The only curragh out that night came safely to shore and to-day the remaining men, still dispirited by the tragedy, have fallen back upon the cheaply built and easily handled curragh as the most useful and safe craft for inshore fishing.

A notable event in local history was the capture in June 1875 of an immense squid by the crew, three in number, of an Inisbofin curragh. The men had just shot their spillets (long lines) when they saw a large whitish object on the surface; seagulls circled overhead in curious troops. The men rowed

toward it and found it to be a squid of gigantic size.[1] They succeeded in cutting off one of its two tentacular arms—30 ft. in length. Startled by this attack, the huge creature made off in a flurry on the surface. The curragh followed and the men managed to cut off the second of the long arms. Eventually they so crippled it by hewing off the remaining and shorter arms that in spite of the threshing and struggling of the body part, they managed to sever the head from the trunk. Some of the fragments are now in the Dublin Museum. The powerful beak measured about 4 in. across.

The curraghs used in Inisbofin, Inishark and Inisturk and in the small fishing harbours on the mainland, such as Ross-a-dilisk and Renvyle, are usually of the three-thwart type; in length they range between 16 and 18 ft., with a beam amidships of 51 in. including the gunwale beading; depth, 20 in. The height from the ground of the stem head is 44 in., dropping to 25 in. at the shoulders. This is continued as far as the second or quarter gunwale splice whence it rises from $\frac{3}{4}$ to 1 in. to the stern. (See Pl. I, fig. 2, and Plan 3.)

As will be seen from the figures, the design bears a close resemblance to that of Achil. Both have a double gunwale frame, spliced at two places on each side; three thwarts are present and the bottom is fully planked as in wooden boats.

The principal characteristics of this design distinguishing it from that of Achil are the following:

(*a*) The standards between the upper and lower gunwales are more numerous. On each side are three in the bow section with seven abaft the shoulder splice, which is strengthened by the insertion of a massive block standard (Pl. I, fig. 2). The bow standards and the alternate ones on each side of the waist are rectangular in section, and fit by means of end-pegs into holes in the two gunwales, upper and lower; the others are "halved" into the gunwales.

(*b*) The stem is formed of a subtriangular block, sloping gently towards the curve of the bottom; it is intercalated between the fore-ends of the upper and lower bow-gunwales,

1 *Zoologist*, June 1875 and Tryon's *Manual of Conchology*, I, 77, 1879.

while beneath is a semicircular block to which the fore-ends of the principal stringers are nailed. Cross boarding of triangular outline covers the stem angle to a distance aft of 14 in. and serves to key the bows together.

(*c*) The stern consists of two straight gunwale bars, held apart by two square-sided standards. The end of the upper gunwale on each side projects a couple of inches beyond the side gunwales and the outer of the angles thus formed is occupied by a filling piece. On the after side the stern gunwale frame is planked across vertically to form a vertical transom stern. The skin boards on the bottom, after passing the last of the rib-frames, turn obliquely upwards to be nailed to the underside of the lower gunwale.

(*d*) In Inisbofin and the other islands the two main thwarts are strengthened by the addition of wooden knees; on the mainland, these are replaced by vertical cylindrical struts.

(*e*) The ribs consist of about forty closely set oak laths, $1\frac{1}{4}$ by $\frac{5}{8}$ in.; the ends pass through the lower gunwale and are then cut off flush. Wedges driven in from below prevent displacement.

(*f*) The bottom or skin planking, called "boards", is without a kelson and the fixed thwarts have no median supporting strut. The boards are thirteen in number, six on either side of a broad median plank, 9 in. wide; the others average $4\frac{1}{2}$ in. wide.

(*g*) The fabric cover is in two layers; the inner, put on in transverse widths, is of coarse material such as sacking. After the fitting on and the nailing of the edges to the outside of the upper gunwale, a coat of tar is applied. A few days later the second or outer layer, made from fine calico ("baffity" = baffetas), is put on and painted over with boiled tar or else a mixture of pitch and tar. Finally a strong protective batten or rather band, called the "ribbon", is nailed over the edges of the double cover, both along the sides and around the stern. (Pl. II, fig. 2.)

(*h*) A pair of rowlock cleats, the "ledges", are fitted on the upper gunwale a little way abaft each thwart as in Achil curraghs, but here a single thole-pin passes through each instead of two and is provided with a stout socket, the "thimble", nailed upon the lower gunwale in which its foot rests.

(*i*) The oars are what may be termed bull-oars as each has a pivoting block or "bull" attached to one side of the squared region of the loom. Here it is of a characteristic form found nowhere else, the outer angle being rounded, while the two basal ones are prolonged into "lugs" by which they are lashed to the loom. Each oar is 10 ft. in length.

Amulet. A small bottle filled originally with holy water but often found empty is invariably suspended by a string from some part right in the bows. It is a sacred amulet against misfortune.

These curraghs are never used under sail.

The cost is from £9 to £10 each.

The Aran Islands

The Aran islanders employ the curragh to a greater extent than any other coast folk in Ireland with the possible exception of the Dingle and Blasket men. To the people of Aran the harvest of the sea is infinitely more precious than that of their inhospitable land; the curragh has always been the only type of vessel obtainable within their terribly restricted means. Their wind-swept isles are bare of trees and there are people there who have never set eyes on anything bigger than a stunted bush. But withies and hide formerly, and to-day imported laths, calico and tar, suffice for the building of serviceable craft, which in the hands of experienced men are the equal and in certain respects the superior of any type of open boat so far as the modest needs of these simple people are concerned.

In the chaotic centuries that followed the Age of the Saints, when the flickering light of the old learning came nigh to extinction, curragh navigation suffered eclipse. In size if not in constructional features these craft appear to have degenerated. Probably there was no true renaissance till last century, indeed, so recently as 1853 we find C. H. Hartshorne[1] stating that "the curach of Aran . . . is about eight feet long, with one square and one pointed end, capable of carrying three people".

1 *Early Reminiscences of the Great Isle of Aran*, pp. 292–3.

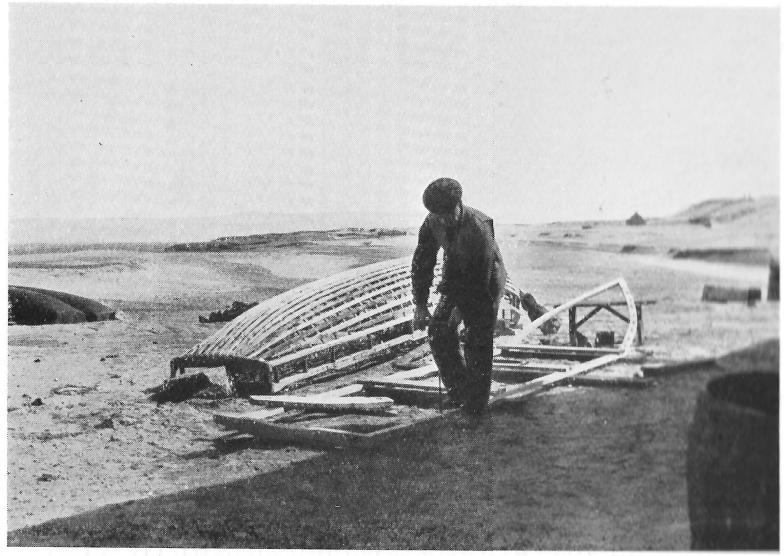


Fig. 1. AN ARAN ISLANDS CURRAGH UNDER CONSTRUCTION
Boring holes in the lower gunwale.

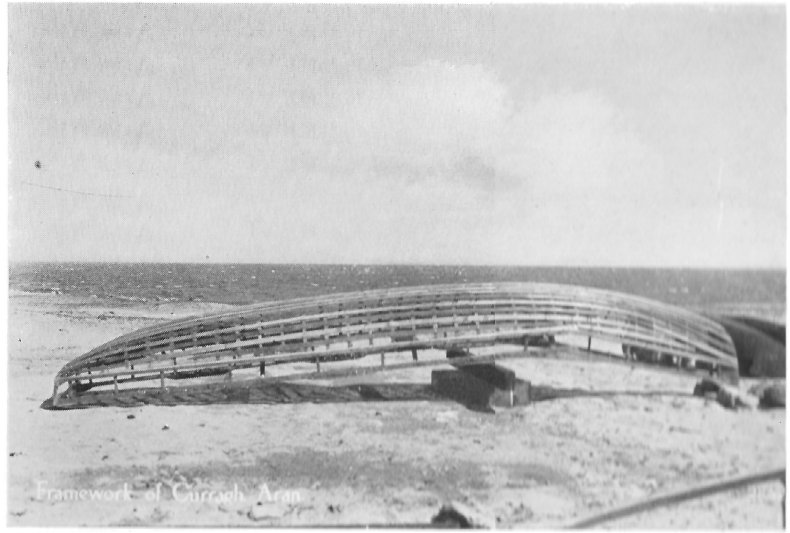


Fig. 2. A COMPLETED FRAMEWORK OF AN ARAN ISLANDS CURRAGH

Both figures by courtesy of Mr T. H. Mason, Dublin

FIG. 1. A GROUP OF ARAN ISLANDS CURRAGHS DELIVERING POTATOES TO A COASTING STEAMER

FIG. 2. TWO BLASKET ISLANDS CURRAGHS PREPARING TO GO TO THE MAINLAND

A cow is bedded on seaweed in one.

Both photos by courtesy of Mr T. H. Mason, Dublin

He adds: "Such is the dexterity with which it is usually managed, that it will land from ships in distress through the roughest breakers, and cross over to the main, when vessels of every other class are unserviceable." Incidentally we learn that the covering continued to be of cow-hide, for he mentions that the curraghs were covered with the same material, cow-hide, as the peculiar skin-sandals used by the islanders.

Back in the early twelfth century, Giraldus Cambrensis had already described the use in this locality of quite small skin-covered curraghs. In a passage in his *Topographia Hiberniae*, III, 26, he relates the adventures of a ship's crew in the words of the men themselves.

> Some sailors told me [says Giraldus] that having once been driven by a violent storm during Lent to the northern islands and the unexplored expanse of the Sea of Connaught, they lay for shelter off a small island. Soon after the storm abated they noticed a small skiff rowing towards them. It was narrow and oblong and made of wattled boughs, covered with the hides of beasts. In it were two men without any clothing except broad belts round their waists. They had long yellow hair, like the Irish, falling below their shoulders. Finding that the men were from some part of Connaught and could speak the Irish language, the sailors took them on board. They said that they had never before seen a ship built of timber.

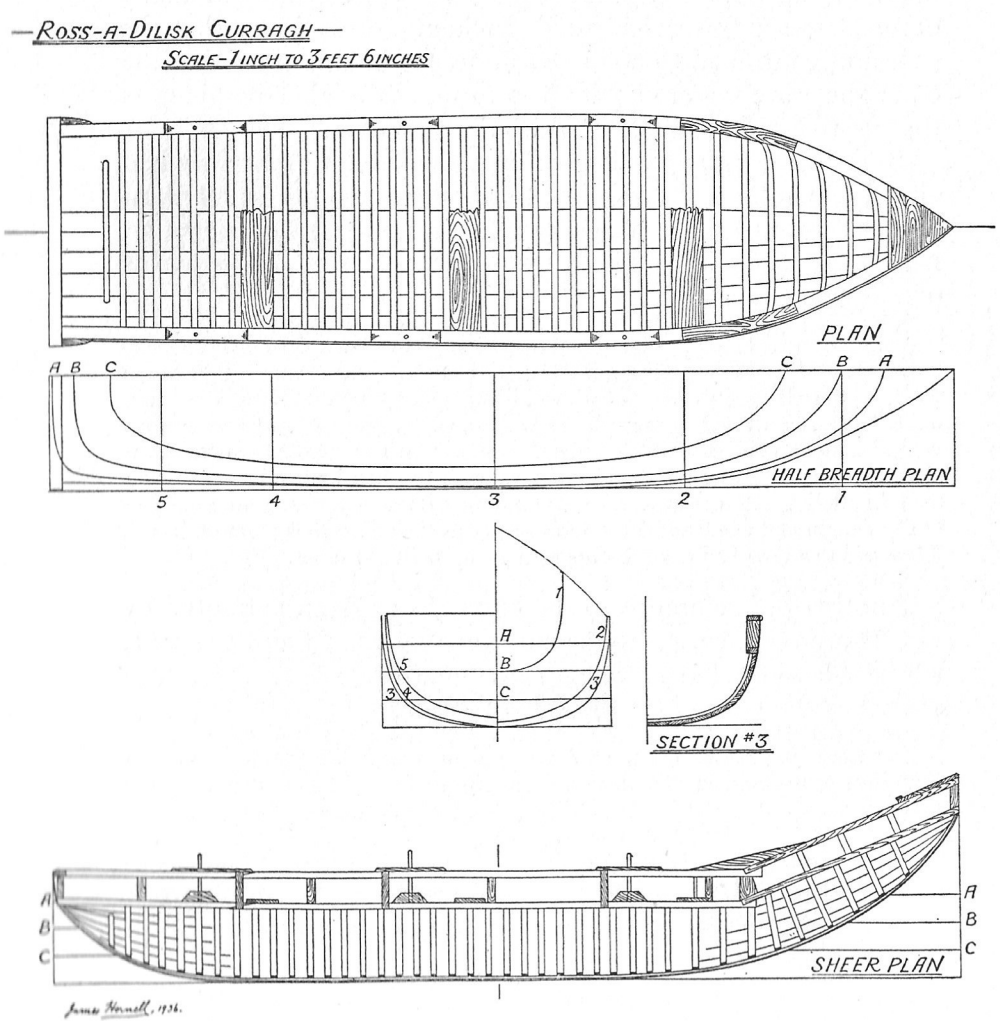
Another old reference to the curraghs of Aran is quoted by Hartshorne (*op. cit.* p. 293) from the *Vita apud Colgan*, p. 711, where he says: "And one of the martyrologies of Endeus describes the currach of the Isle of Aran thus:

> Erat enim in istis partibus, eo aevo, quoddam navigii genus usitatum, ex viminibus contextum, et bovinis coriis contectum; quod Scotica lingua Curach appellatur."

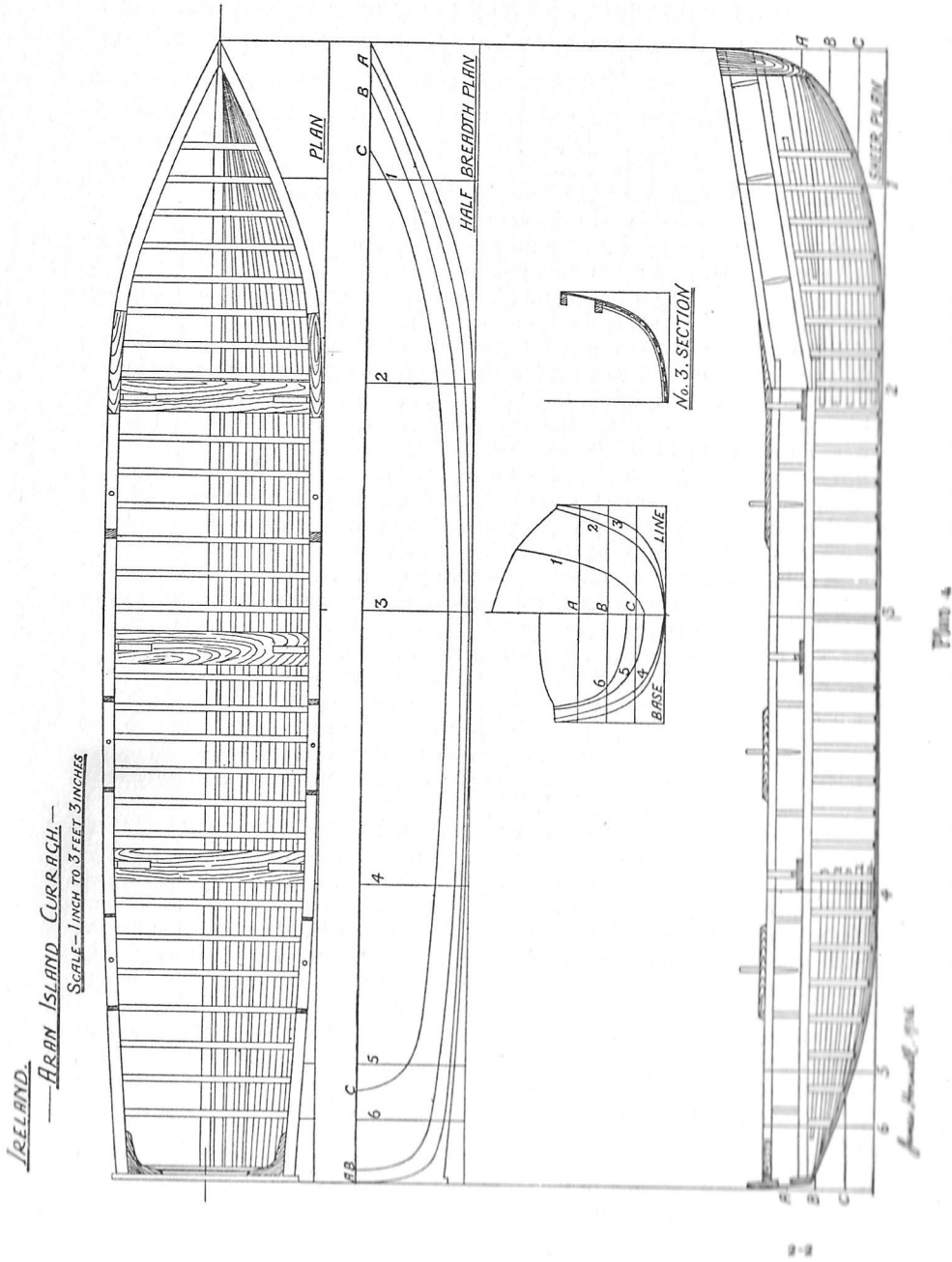
And then Hartshorne adds: "This reputed saint was accustomed to order his monks to go into the naked framework of the vessel, and if the water came in upon them, it was a sign that they had contracted some earthly stain."

Synge, the dramatist, has given an account of a trip in an Aran curragh[1] so vividly written and so enlightening on the way a curragh is managed in heavy weather that I cannot refrain from quoting it at length. Many years ago I had a somewhat similar adventure in a Sheephaven curragh and I can

1 Synge, J. M., *The Aran Islands*, pp. 97–8. Dublin and London, 1907.


—ROSS-A-DILISK CURRAGH—
SCALE-1 INCH TO 3 FEET 6 INCHES
PLAN
A B C
C B A
HALF BREADTH PLAN
5 4 3 2 1
SECTION #3
SHEER PLAN
A
B
C
James Hornell, 1936.

Plan 3.


IRELAND.
—ARAN ISLAND CURRAGH.—
SCALE-1 INCH TO 3 FEET 3 INCHES
PLAN
HALF BREADTH PLAN
No. 3. SECTION
LINE
BASE
SHEER PLAN

vouch for the absolute accuracy of Synge's description and in particular of the clever manœuvre which is executed to avoid pooping.

Synge writes:

We set off. It was a four-oared curagh, and I was given the last seat so as to leave the stern for the man who was steering with an oar, worked at right angles to the others by an extra thole-pin in the stern gunnel.

When we had gone about a hundred yards they ran up a bit of a sail in the bow and the pace became extraordinarily rapid.

The shower had passed over and the wind had fallen, but large, magnificently brilliant waves were rolling down on us at right angles to our course.

Every instant the steersman whirled us round with a sudden stroke of his oar, the prow reared up and then fell into the next furrow with a crash, throwing up masses of spray. As it did so, the stern in its turn was thrown up, and both the steersman, who let go his oar and clung with both hands to the gunnel, and myself, were lifted high up above the sea.

The wave passed, we regained our course and rowed violently for a few yards, when the same manœuvre had to be repeated. As we worked out into the sound we began to meet another class of waves, that could be seen for some distance towering above the rest. When one of these came in sight, the first effort was to get beyond its reach. The steersman began crying out in Gaelic "Siubhal, siubhal" ("Run, run"), and sometimes, when the mass was gliding towards us with horrible speed, his voice rose to a shriek. Then the rowers themselves took up the cry, and the curagh seemed to leap and quiver with the frantic terror of a beast till the wave passed behind or fell with a crash besides the stern.

It was in this racing with the waves that our chief danger lay. If the wave could be avoided, it was better to do so, but if it overtook us while we were trying to escape and caught us on the broadside, our destruction was certain. I could see the steersman quivering with the excitement of his task, for any error in his judgement would have swamped us.

We had one narrow escape. A wave appeared high above the rest and there was the usual moment of intense exertion. It was of no use, and in an instant the wave seemed to be hurling itself upon us. With a yell of rage the steersman struggled with his oar to bring our prow to meet it. He had almost succeeded, when there was a crash and rush of water round us. I felt as if I had been struck upon the back with knotted ropes. White foam gurgled round my knees and eyes. The curagh reared up, swaying and trembling for a moment, and then fell safely into the furrow.

This was our worst moment, though more than once, when several waves came so closely together that we had no time to regain control of the canoe between them, we had some dangerous work. Our lives depended upon the skill and courage of the men, as the life of the rider or swimmer is often in his own hands, and the excitement of the struggle was too great to allow time for fear.

I enjoyed the passage. Down in this shallow trough of canvas that bent and trembled with the motion of the men, I had a far more intimate feeling of the glory and the power of the waves than I have ever known in a steamer.

Aran curraghs run in sizes denominated by the number of rowers accommodated—two, three or four as may be, each man rowing two oars. All are constructed upon the same plan of low narrow hull, sharply sheered bows, and low transom stern.

The gunwale frame on each side is here in two sections only—a long after section, horizontal, and a fore section forming the bow region which is spliced on at an obtuse angle of about 160–165°, thereby giving a straight sheer of 15–20° from the horizontal main gunwale.

The after-ends of the gunwale frame are closed in by a vertical transom, consisting of two fairly broad boards, upper and lower, separated by a space of about 3 in. The upper board is bowed weakly on its upper edge, with the lower one bowed similarly along its lower edge. The upper and lower gunwales are pinned respectively to the upper and lower stern boards by having their extremities thinned down to stout, square pegs which are thrust through holes made in the ends of the two boards.

Stringing the gunwale frame together are the thwarts and mast partner which are nailed upon the lower gunwale and steadied by L-shaped knees nailed above to the inner side of the upper gunwale and below to the thwarts.

The bottom is formed of a latticework of laths which cross one another at right angles. The inner laths are transversely disposed and form the rib-frames; they are spaced about 8 in. apart and their ends fit into holes bored through the lower gunwales. The outer layer of laths, wider but thinner, run longitudinally and form the stringers. At the stern the ends of the principal stringers are nailed to the under edge of the lower stern board while at the fore-end they are nailed to the sides of a vertical board set on edge to function as a stem board.

The intersections of the latticework are nailed together; in former times they were tied together with thongs or with cord.

Covering all is the canvas skin, of one or two layers of tarred cotton-cloth.

The bottom and bilges are gently curved transversely; longitudinally the bottom is also curved throughout its length, but the curve along the middle third is so slight as to be hardly

discernible. The forward third sweeps up in a long deep curve to meet the sharp stem, whereas the after third is much more lightly curved as the stern is much lower than the head and with barely half the depth found amidships.

Construction. The lower gunwales are laid down first, right side up, with the bow region supported at the right height upon a trestle (Pl. III, fig. 1). The thwarts are then nailed on and the lower stern board mortised in position. These act as horizontal girders. The upper gunwale is put together in the same way and superposed upon the lower at a distance apart of about 6 in. by the interposition of short stanchions, the standards, along the sides, and by the fitting on of the upper stern board and the broad vertical stem board.

When complete this gunwale frame is turned upside down, supported at mid-length and at the head on blocks. It is now ready for the bottom to be put in. First, the rib-frames are placed in position, curved to the desired angle; the ends of each inserted into holes in opposite lower gunwales. Last of all the stringers are nailed on (Pl. III, fig. 2 and Pl. VII, fig. 1); as already mentioned, only a few are attached to the stem board; at the stern about half the number of stringers are nailed to the lower stern board; the ends of alternate laths are left free. The calico cover is put on as in Donegal.

All that remains is to turn the curragh right side up and fit a thole-pin in a hole bored through the centre of each of the short rowlock cleats which have been already affixed to the upper gunwale. In large curraghs a perforated mast thwart (mast partner) and a mast shoe are fitted in the bow region.

Equipment is of the simplest—a pair of oars for each man and an extra one for the steersman, are present in all curraghs. In large ones a short mast hoisting a low and relatively long lug sail is set right in the bows (Pl. II, fig. 1).

The form of the 10 ft. oars is similar to that of Connemara except that the bull is triangular in shape.

The sail is without shrouds or stays. Apart from the halliard, the only ropes controlling it are the tack which is led to a point near the stem, and the sheet, carried aft to be passed around the last thwart.

Besides being used in fishing and the collection of kelp, the larger curraghs are employed in lighterage work (Pl. IV, fig. 1), carrying cargo and passengers to and from the small cargo steamers that ply to Galway and coastwise to other mainland ports. A medium-sized curragh (three-man) is reputed to carry about 30 cwt., while a four-man size should carry 2 tons.

These curraghs are easily transported on land by their crew who carry them inverted and stern foremost, supported upon their shoulders, one man under each thwart, their heads and shoulders hidden beneath the downturned boat and their hands resting on the inner side of the gunwales or grasping the thole-pins. When not in use they are placed bottom up, the sides carefully supported and also held down by boulders.

Dimensions. A two-man curragh ranges between 15 and 16 ft. in length; a three-man one from 19 to 20 ft., and a four-man one from 22 to 25 ft. The beam varies between 3 and 3½ ft. amidships where it is about 1–1½ in. wider than the stern. Depth, from 26 to 27 in.

The gunwales are scantlings from 2½ to 3 in. wide by 2 in. deep. The ribs number 22 in two-man curraghs, and 30 or 31 in three-man ones. In the older ones they are half-hoops of oak; in newer ones sawn laths, 1½ by ½ in., spaced apart 5½ in.

The stringers, spaced variably from ¾ to 1¼ in. apart, are wider in the three lying in the median line (2–2¼ in.) than the outer ones which are mostly about 1½ in. wide.

The gunwale standards or stanchions always number three in the bow region where they are of spindle form; along the main gunwale frame they vary from six to seven in the larger size and in the small ones usually five—these are rectangular in section.

Other dimensions are indicated on Plan 4.

The ends of the thole-pins rest free on the lower gunwale, as no thimbles are provided. Two holes for steer-oar thole-pins are provided in the upper transom board at the stern.

The Coast of Clare

Curraghs continue a vigorous existence in every sheltered fishing cove guarded by the frowning sea-cliffs that tower to dizzy heights along this dangerous but lovely coast of county Clare, now becoming a favourite playground of the Irish people.

Quilty and Kilkee are the chief centres; some curraghs are also found in use at Kilrush and Scattery Island. As is to be expected from the fact that the curragh men fish in the same great bay and by the same methods as the Aran islanders, the Clare curragh differs only in details from that of the Aran Islands. Possibly the Clare craft are more carefully finished, for the Clare men to-day are more in contact with the outside world; as they often let their curraghs in summer to visitors for fishing excursions, they find it profitable to pay attention to a trim and well-finished appearance.

The men's preference in the past for curraghs as against all wood-built boats was due in large degree to the same factor as in Aran—lack of timber in the coast region which is similar in geological character to that of the Aran Islands. A story told to Dr A. C. Haddon some 40 years ago illustrates this. A Clare fisherman reputed to be a sceptic in regard to miraculous happenings was tackled one day by the Parish Priest. "Do you disbelieve in the miracles accepted by the Church?" said the Father. "No, Father," was the reply; "I believe them all right, barring one; you tell us that when our Lord was passing by, Zaccaeus climbed into the branches of a tree to get a sight of him. But, Father, how could a man do this? There never was a tree big enough to hold a man!"

Here and in Kerry the Gaelic term *curach* for a curragh is replaced by *naomhóg*, pronounced *naevōg*; in Anglo-Irish, it is termed a canoe.

The principal differences of construction as compared with the Aran design consist of the following points, shown in Plan 5:

(*a*) A straight, nearly vertical stem; the curved Aran stem board is replaced by a thick wooden stem strut, joining the fore-ends of the upper and lower bow-gunwales; this strut does not

Fig. 1. BUILDING A KILKEE CURRAGH
The gunwale frame has just been completed.

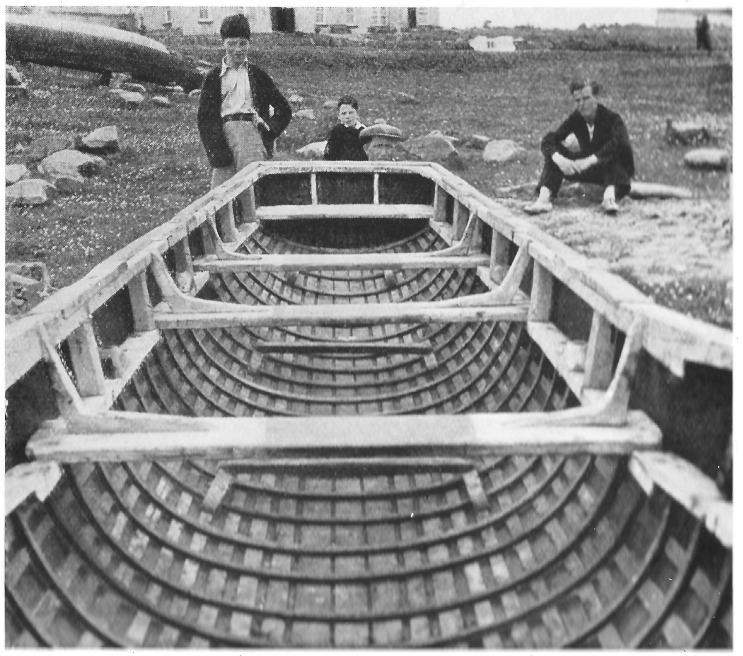


Fig. 2. LOOKING AFT INTO THE HULL OF A KILKEE CURRAGH

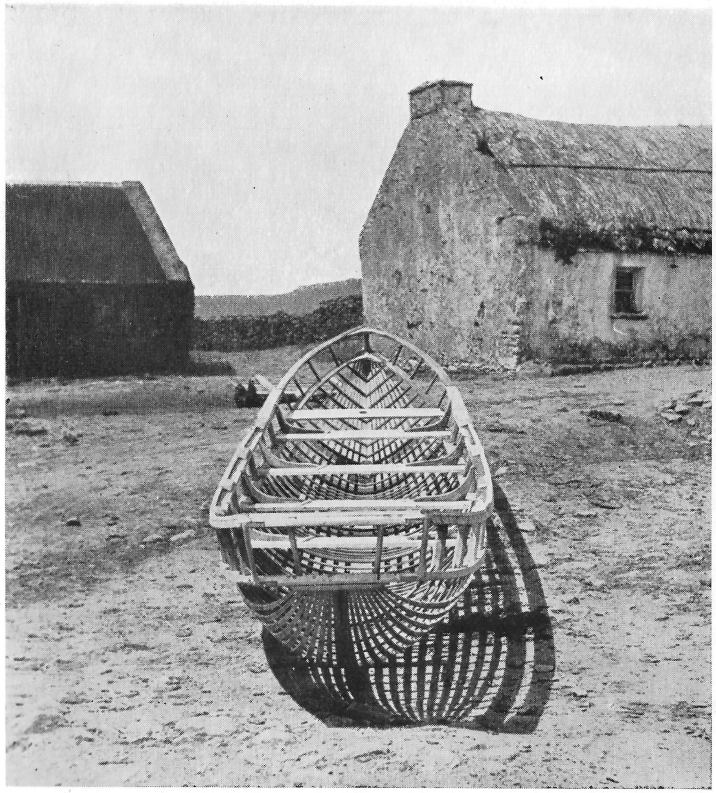


FIG. 1. FRAMEWORK OF A DINGLE CURRAGH, VIEWED FROM THE STERN

extend below the lower gunwale, so that the curve into the bottom begins abruptly below the lower gunwale.

(*b*) The stern frame curves outwards; instead of two deep vertical boards as in Aran, it consists of two outwardly curved bars, countersunk into the upper side of the ends of the side gunwales instead of the latter being mortised into the stern boards.

(*c*) A loose seat across the stern is present for use when hauling lobster pots aboard.

(*d*) Instead of the after-ends of the stringers being nailed against the lower unit of the stern frame, they are here mortised obliquely into the lower cross-bar. Only the ends of the three median stringers, which, as at Aran, are broader than the others, pass through this bar and show upon its upper surface.

(*e*) A strong batten, 1 in. wide, called the "bulwark", is nailed along the outer horizontal surface of the upper gunwale between the thole-pin cleats and also around the stern. This is a refinement present in order to save the nets from catching on the ends of the thole-pin cleats (the "rowing-boards").

The general dimensions of these curraghs and the number and arrangement of the ribs and stringers are approximately as in Aran curraghs. In the examples measured at Kilkee there were twenty-nine oak lath rib-frames ($1\frac{1}{8}$ by $\frac{1}{4}$ in.) and twenty-three stringers of thin deal, $1\frac{1}{4}$ in. wide, except the three median ones which were from $2\frac{7}{8}$ to 3 in. in breadth.

Three cross-bars resting on short side-cleats (Pl. V, fig. 2) serve as foot-rests, one abaft each thwart.

Regarding oars and gunwale fittings, slight divergences are seen when compared with Aran. The oars are of the same dimensions, but the "bull", here called the "oar-block", has its angles rounded, and instead of the thole-pin resting free on the lower gunwale it is provided with a socket as in the Connemara curraghs.

These curraghs are not normally used under sail, but a short mast and lugsail have recently been added in one or two instances at Kilkee.

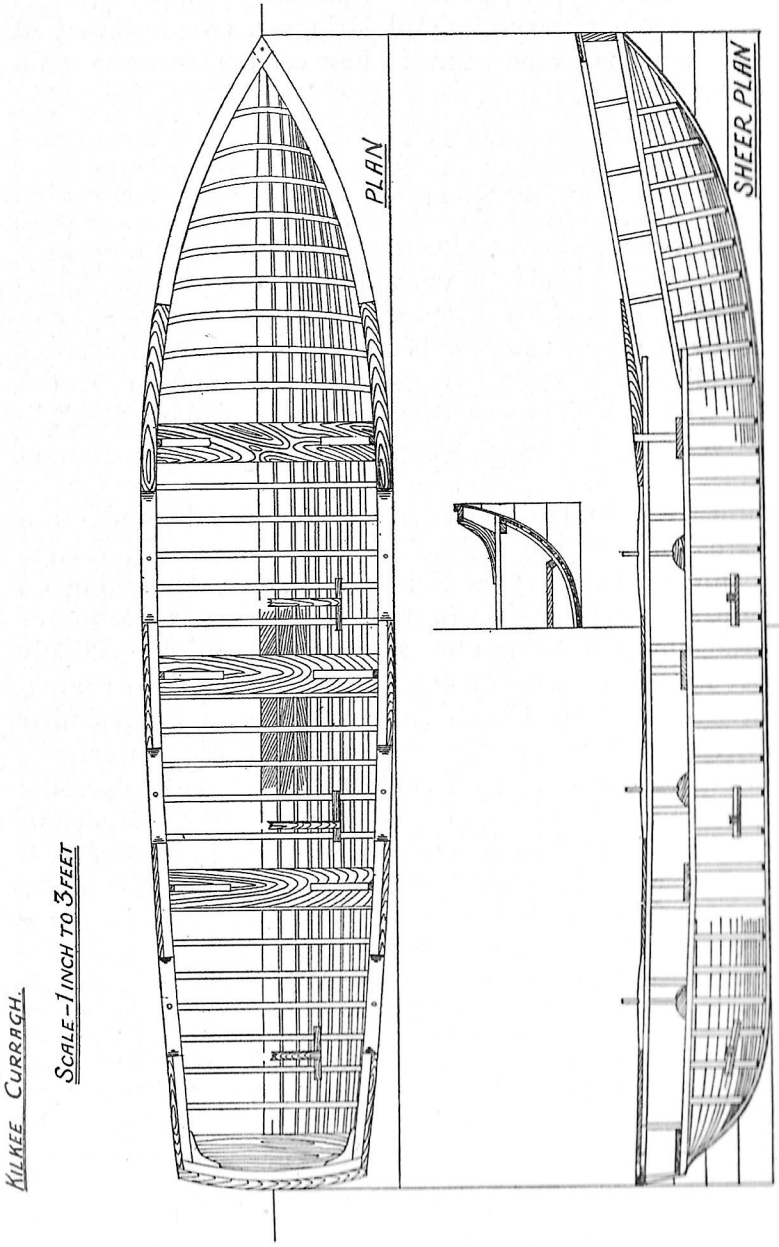
They are kept bottom up when ashore, supported under each shoulder on a pile of three or four stones. Others rest against the stem and stern; this boulder support is termed "the stage".

Kilkee curraghs are made by Mr Marrinan, the village wheelwright of Cuisheen, a hamlet outside the town. One was under construction at the time of my visit. The way the frame is put together is shown clearly on Pl. V, fig. 1. A series of stout timbers resembling railway sleepers is partially sunk into the ground at definite distances apart. Into these "stops" are driven, marking the width desired for the lower gunwale frame. This part is constructed first, about a couple of inches narrower, across the hull, than the upper, here called the "top frame", the lower being the "under frame". After the thwarts are nailed in place, the upper gunwale is fitted, the distance separating it from the lower being regulated by the length of the short stanchions fitted between. In the bow region these are cylindrical rods, four on each side; along the sides they are rectangular and as wide as the gunwales, with two others at the stern. All have a peg at each end to fit into holes bored in each gunwale. The overall width of the upper gunwale frame is regulated by a series of four notched bars, the "models". After this framing is completed by the fitting together of the two gunwales, it is turned over and the ribs and stringers fitted in position.

When the whole framing is finished, if it be insufficiently curved at either end to suit the owner's fancy, further curve is obtained by turning the curragh bottom up, supported on wooden blocks at appropriate intervals, but without any for the end region (or regions) which it is desired should be further curved. Weights (stones) are attached to the outer extremity of the unsupported section until enough curve is obtained. To prevent the frame from springing back to its original curvature, the heights of the stone piles of the "stage" are so regulated as to keep the curves correct. If by any chance they do spring back the weighting procedure is repeated.

Deal is used for the gunwales, stringers and oars; oak for the ribs, elm for the bow-frames, and sally wood for the knees.

Dimensions of a typical Clare curragh. Length overall, 17 ft. 8 in.; beam, amidships (outside), 46 in., at stern 34½ in. (2 in. less on lower stern bar); depth amidships, 22¼ in. Height from ground: at stem, 34 in.; amidships, 23 in.; at stern, 25 in.;



Plan 5.

distance between upper and lower gunwale, 7 in. Number of rib-frames, from twenty-nine; of stringers, twenty-three; of gunwale-frame stanchions, four in bow section, seven in main section, two in stern frame; oars, 10 ft. long.

The River Shannon

Except at the seaward end of the Shannon estuary—principally at Scattery Island—no curraghs are now to be found on the River Shannon. Their disappearance must, however, be of comparatively recent date, for W. S. Wakeman[1] mentions in a book published in 1852 that curraghs "formed of wattles covered with cowhides are common above Lough Ree", a locality very far inland and approximately at the centre of Ireland.

Another record takes us back to the troublous days of Queen Elizabeth. In 1602 the Irish leader O'Sullivan Beare, when in flight before the troops of the Earl of Thomond, was held up on coming to the Shannon, just north of Lough Derg. No means were available for crossing the river; retreat seemed effectually cut off. In this emergency the leader had resort to the expedient employed by Caesar in Spain in somewhat similar circumstances. The chronicler of this historic retreat, P. O'Sullevan Beare, has told the story in Latin.[2] Apart from the vivid picture which it draws of the courage and endurance of the little band of fugitives, the details of curragh construction are so valuable that it cannot be omitted. The translation of the passage is as follows:

> O'Sullivan was in the gravest danger since he could not cross the river, here wide and deep; the enemy had removed all skiffs and boats and had threatened to visit the severest penalties upon any boatman who should ferry him across. The strength of the soldiers was also failing for lack of food. Deep despair filled the hearts of all. At this critical juncture my father, Dermot O'Sullivan, declared that he would soon build a boat and also satisfy the soldiers' hunger.

1 *Three Days on the Shannon*, p. 35. Dublin, 1852.

2 *Historia Catholicae Iberniae Compendium*, Ulyssipone (Lisbon), 1621, tom. 3, lib. 7, c. IX., fol. 190, 191.

> Next day, which was the seventh of January, on the instructions of Dermot, they betook themselves to Brosnach wood, very dense and therefore a safe refuge, and surrounded themselves with a rampart constructed of tree trunks with a small ditch on the outer side. In two days they built two boats of osiers and timber; twelve horses were killed and their hides used to cover the boats, while their flesh was eaten by all except O'Sullivan, Dermot, and Dermot O'Huallachan. The boat which Dermot designed was built in the following way: Osiers fixed in the earth by their thicker ends and bent back to the centre towards one another, were bound in place with cords and these formed the hull of the vessel. To this stout wooden gunwales [*solida tabula statumina*] and thwarts inside were added. The exterior was covered with the hides of eleven horses; oars and thole-pins were also fitted. The bottom, because of the nature of the material and for the purpose of avoiding rocks and jagged points, was flat. The length was 26 feet, the width six and the height five except at the prow which was raised a little higher to throw off the waves.
>
> The construction of the second boat was in the hands of O'Malley's horsemen. It was made of osiers without crosspieces [thwarts]; the bottom was shaped like a circular shield and the sides were much deeper than the bottom required. A single horse-hide was sufficient to cover the bottom.
>
> These boats were carried by night on the soldiers' backs to the Shannon at Port-a-tulchain [now Portland] and in them O'Sullivan began secretly to transport his men across. Ten of O'Malley's soldiers boarded their boat. But the vessel being both small and overweighted by its useless superstructure, foundered with the men in midstream. Dermot's boat, which would hold 30 men at a time, carried the others across in safety, the horses swimming behind at the ends of halters tied to the stern.

County Kerry

In the Dingle peninsula and in the Blasket Islands the curraghs that go fishing from the many little harbours in this district are the largest, the most elegant, the most beautifully proportioned and the most carefully made of all surviving types. Every part harmonizes; they ride the water more lightly than the sea-fowl yet are strong enough to battle successfully with the wild Atlantic gales that torment this coast in winter.

Although they are used almost exclusively for fishing and communication with the mainland, it is comparatively recently that the Blasket islanders began to use them as generally as do the mainland folk, for the Blasket fisherman, Tomás Ó Crohan, in his autobiography *The Islandman*[1] repeatedly refers to the large wooden seining boats in use in his early manhood both in the Blaskets and at Dunquin. He describes (*op. cit.* pp. 203–5)

1 Translated by Robin Flower, London, 1934.

the coming of the first "canoe" as the curragh is termed in Anglo-Irish:

> Somebody said one day that two of the islanders had gone to a fair in Dingle, and that they had bought a canoe from a man when they were drunk. Before long we saw her coming, and we marvelled at her. The women whose husbands were in her began a long, soft musical lament when they saw the quill of a boat that they were in....A day or two after this...what should I see but this very canoe, I thought,...full of some objects which they were throwing into the sea....But it wasn't the canoe the two men had bought at all, for that one was in the Island creek.

The second canoe was from Dingle.

> The things I had seen them throwing into the sea were pots to catch lobsters. the Blasket people were as strange to that sort of fishing tackle as any bank clerk at that time. Not much of the year had gone before there were four Dingle canoes fishing lobsters round the Blasket after this fashion.
>
> ...When the people found out how it was done, the two who had bought the canoe put pots into her. They fished for a year—the only boat from the Island—and made money. Next year off went the crews, racing one another to get canoes, and they were difficult to come by, for very few were being built. Every new one cost from eight to ten pounds....Merchants from Dingle used to buy the lobsters.... They made an excellent fishery, for the seine fishing had failed by this.

Eventually the two seine boats were seized at Dingle for arrears of rent and since then curraghs are the only fishing craft owned by the islanders.

Even at Dingle the employment of curraghs appears to be of comparatively recent introduction, for Holdsworth[1], writing in 1874, says curraghs have been in use at Dingle only for about 25 years; he adds "but are of longer standing on the coast between Dingle and the Clare side of Galway Bay". He gives the cost at £5, and the size as about 20 by nearly 4 ft., with a crew of four men.

To-day the usual size is greater. It averages 25 ft. in length by a beam (outside) of 4 ft. 6 in.; depth amidships, 23 to 24 in.; three men are now considered a sufficient crew.

The type is a refinement of that of the Aran Islands. It owes the remarkable elegance of the form which is its outstanding characteristic to two principal features: (*a*) The gunwale sheer curves sweetly fore and aft. No ungainly angular break occurs at the after-end of the bow region, as in other types. Similarly

1 Holdsworth, E. W. H. H., in *Deep-sea Fishing and Fishing Boats*, pp. 380–1, 1874.

in the after region, the quarter gunwales are given a similar but less emphatic sheer, in place of the straight run seen in most other types. The bottom curves up correspondingly, so that when the curragh floats light, both ends, gracefully sheered, rise clear of the water; there is practically no straight run along the bottom; in profile it has the form of a long and gently curved arc. (*b*) Unlike other curraghs where the stern is little less beamy than amidships, the Dingle curraghs narrow in rapidly abaft the last thwart. This reduces the stern transom to less than half the midships beam. (*c*) The entrance is unusually fine, for the rib frames in the bow region between the head and the shoulder splice, instead of being roundly curved as usual, are bent at mid-length so sharply as to form an acute angle, and give the appearance outwardly of a sharp "cutwater".

A 25 ft. curragh is fitted with four rowing thwarts, 3 ft. 10 in. apart. Two feet forward of the first is another thwart, perforated at the centre to serve as a mast partner, for these curraghs carry sail (Pl. VI, fig. 1).

The gunwale frame is in three parts: (*a*) the main or side frame, (*b*) the curved bow gunwale frame, and (*c*) the stern frame. Each is formed of an upper and a lower gunwale, as in Aran curraghs, held apart by nineteen struts, 6½ in. long; ten broad rectangular ones are fitted at equal intervals along the waist, with five cylindrical ones in the bow region and four at the stern. As the beam across the upper gunwales is greater than that across the lower ones, the dividing struts slant obliquely downwards and inwards, and when the canvas cover is put on this part of each side slopes gently inwards. The beam outside, amidships, is 4 ft. 6 in., decreasing gently to 4 ft. 2 in. at the last thwart. Abaft this it draws in rapidly till at the stern it is only 2 ft. wide. At the bow shoulder the usual type of splice is used, but more carefully and strongly made than usual.

The number of rib frames is unusually great—thirty-three in the waist region, with ten more in the bows. The average distance apart is 5¼ in. but in the places where the rowers' feet may reach the bottom, a number of short accessory frames are added to strengthen these parts.

The ends of the full-length ribs pass through oblique slots

in the lower gunwales and may or may not be keyed by means of a cotter pin, on the surface of the gunwale. If not keyed they are cut off flush.

The stringers consist of nine planed white deal laths, 1⅜ in. wide, on either side of a broad median board or keel-plate, 4½ in. wide. For a distance of about 4 ft. from either end this keel-plate is sawn down the centre and the two halves reduced slightly in width, in order that they may be more easily bent at the end curves. At the stern, the ends of the principal stringers are mortised into the lower unit of the stern frame. These stringers are placed apart from 1 to 1¼ in. The ends of each thwart are nailed upon the lower gunwale, and each is supported by an L-shaped knee cut from a naturally grown bend of sally wood, elm or oak. A horizontal L-shaped angle piece is also used to key together the joint where each of the side gunwale bars is countersunk in the end of one of the cross-bars forming the stern gunwale frame. At the fore-end the bow-gunwales, upper and lower, are each united by a countersunk joint and keyed together by a breasthook on the after side. A stout strut is fitted nearly vertical between the fore-ends of the two gunwales (Pl. VII, fig. 2).

The rowing equipment consists of a pair of rowlock cleats, 1 in. thick, fitted upon the upper gunwale abaft each thwart; a thole-pin thrust through a hole in each of these cleats is provided with a socket, the "thimble", nailed below upon the lower gunwale and 15 in. abaft the thwart to which it is related. Between the rowlock cleats on each side a stout batten is nailed on the gunwale, to prevent the nets and lines from fouling the ends of the cleats. For the same reason a narrow batten is nailed obliquely across each thwart inward to the knee.

A "footstick" rests athwart the bottom, 25 in. abaft each thwart. Each end rests on a short cleat nailed across two of the ribs.

Oars. These are of the Aran Islands' pattern having a triangular "bull", 12 in. along the base, which is nailed to the square proximal section (2 by 2 in.) of the loom.

The height of each "bull" is 3½ in. The triangular shape is adopted for reasons of economy, as several of this shape and size may be cut without waste from a 2 in. plank, 3½ in. wide.

The length of the three pairs of oars usually carried is the same for all, 11 ft., but not so the position of the bulls. As each man rows double-handed, overlapping the grips and sits amidships, so the length inboard from the bull must vary with the beam at each thwart. The formula in use is to divide the beam between opposite thole-pins by two to obtain the suitable working length from the centre of the bull to the top of the square part of the loom.

The blade is 2¼ in. wide by ½ in. thick.

The crew of three occupy the first, second and fourth thwarts when net fishing, as the nets are stowed below the third thwart. Livestock is also carried in the same place, as seen in Pl. IV, fig. 2, where a hobbled cow has been stowed on a pile of seaweed in a Blasket Islands curragh for transport to the mainland.

One of these curraghs is said to be able to carry a catch of 4000 mackerel.

A steer oar is sometimes carried if a fourth man be aboard. Only at regattas in Dingle Bay are curraghs nowadays rowed four-handed.

As in Wales, the old form of bailer is a turned wooden bowl; an old tin has replaced it.

Mast and sail. All Kerry curraghs are fitted for sailing. A short mast, 10–11 ft. long, about 3 in. diameter, without shrouds, passed through the hole in the forward thwart, is stepped in a socket in a short mast shoe nailed across the eighth and ninth ribs. Through an iron ring near the masthead the halliard is rove with an iron traveller at the end. This hoists a small lug sail, lashed to a yard 9 ft. long. A sheet and a tack control its set.

When under sail one or even two comparatively large leeboards are sometimes employed—probably a fairly recent innovation. Length 5 ft., width 5½–6 in. Each is provided with a half loop at the upper end by which it may be hung from a thole-pin. If two are used one is slung from the second thole-pin and the other from the fourth on the lee side.

The cover takes 28 yd. of No. 7 cotton duck. When cut out and sewn together, it is put on the framework inside out, and

coated with boiled gas-tar. When this is dry it is turned and nailed on over the frame and tarred again with hot boiled tar. Before use a coat of cold tar may be applied in addition. No pitch is mixed with the tar.

The fishermen's wives machine sew the body of the cover in transverse sections, the edges overlapped from 1 in. upwards, according to the longitudinal curvature of the hull, but in the nose section, which is bipartite, the seam running along the sharp bow edge is hand sewn by the men, for this requires very careful adjustment, and has to be done *in situ*.

Method of construction. No builder to-day can make better curraghs than Michael FitzGerald of Baile-na-nGall (Ballydavid). In June 1936 I was so fortunate as to find him at work on one, and the following account is that of his procedure. This may differ and probably does, in certain details, from that of others. For example, FitzGerald steams and bends his rib frames individually; another builder uses a bending frame in which a number are curved and set in advance.

The builder, who usually works to standardized dimensions, keeps a set of five guide blocks, called collectively the "stocks", partially embedded in the floor of his workshop, spaced several feet apart. Near the outer end of each a stop is nailed. Six feet from the foremost one is a heavy wooden block, 16 in. high; stretching from the inner side of the stops on the foremost stock to the block is laid the bow mould—the two bow pieces from an old curragh. The main section of the lower gunwale frame, steamed to allow of bending, is now placed on the stocks and adjusted against the stops and fixed in position by transverse wedging bars. Work then proceeds in the following order:

(*a*) The stern bar is fitted and a strengthening L-piece nailed on, at each angle.

(*b*) Thwarts 2, 3, and 4 are nailed in place.

(*c*) The lower bow-gunwale frame is adjusted, with the apical angle secured by a breast hook.

(*d*) The first thwart and the mast partner are nailed on.

(*e*) Holes for the "standards" are bored.

Attention is next given to forming the upper gunwale frame. Although the sectional size of its scantling is the same as that

of the lower gunwale, it has to be made from 2 to 4 in. wider in the beam; only two guide bars (see the Kilkee fig. 1, Pl. V) are employed; one is set 2 in. in front of the stern of the lower gunwale and the other over the shoulder splice.

When the frames are finished, the angle of curvature at the shoulder splice is adjusted and this fixed by means of the "splint", a locking shoulder piece.

After boring oblique holes for the standards, a temporary strut is nailed lightly some 6 ft. from the stern and another across near the shoulders.

After lifting the upper gunwale frame to one side the lower ends of the standards are driven into their holes in the lower gunwale; while doing this the after section is bent upwards a little by means of blocks placed below.

The upper gunwale frame may now be placed in position, and connected with the lower one by fitting the upper ends of the standards into their holes in the upper gunwales.

When the thwart knees, rowlock cleats, marginal battens between the cleats, and thole-pin thimbles have been fitted, the double gunwale frame is turned over, and the ribs inserted in the slots which have previously been cut in the lower gunwales. With the fitting of the stringers and the kelson plank the general framework is complete and may be turned right side up to permit of the fitting of the mast shoe, the foot rests and the accessory short ribs required to reinforce the bottom against the feet of the rowers (Pl. VI, figs. 1 and 2).

Finally the cover is fitted on and tarred as already described.

Keeled Wicker Vessels

The only records of hide-covered wicker vessels provided with keels are that of Caesar to which reference has already been made[1] and the representation of "A portable vessel of wicker ordinarily used by the Wild Irish", made by Captain Thomas Phillips,[2] preserved in the Pepysian Library, Cambridge.

1 "British Coracles", Part 1, in *The Mariner's Mirror*, January 1936.

2 Nance, R. Morton, "Wicker Vessels", *The Mariner's Mirror*, July 1922.

Regarding Caesar's account, it is unlikely that he had any personal knowledge of the system followed by the Britons in the construction of their wicker curraghs. The probability is that he saw some of these vessels in use, recognized their utility for certain purposes and under certain conditions, and then, when the need arose, made his own deductions as to how they might have been built and issued his instructions accordingly. Any makeshift method of construction would serve his need, provided that the resultant craft would float and be capable of transporting soldiers across a river—quite a short journey. Naturally he would base his building procedure upon that followed by Roman boat-builders working in wood. Once the frame, consisting of a light keel and ribs, was put together, the working or weaving in of osiers to form wicker sides in a rough and ready fashion would be comparatively simple work for men skilled in basketry. Such men, we may be sure, were available to Caesar, for Roman armies, recruited from every nation and tribe under Roman rule, included craftsmen of almost every imaginable trade. Hence I am not inclined to attach undue importance to Caesar's mention of the employment of wooden keels and ribs. It seems reasonable to infer that the wicker craft which he ordered to be built were of hybrid character, combining a light wicker-and-hide cover with the boat framing familiar to his army craftsmen.

Phillips's seventeenth-century pictured representation of an Irish wooden-framed wicker vessel is also of a hybrid craft; something between a deep-sided curragh and a small plank-built sailing ship of the period. Nowhere is there any corroborative evidence that any such design ever existed; the only description of large curragh construction in the seventeenth century, that by P. O'Sullevan, of the curragh 26 ft. long by 6 ft. beam and 5 ft. in depth, made by Dermot O'Sullivan in 1602 on the Shannon, contradicts Phillips's sketches in their entirety (see p. 29 above).

O'Sullivan's curragh was constructed bottom up, exactly as all curraghs are built at the present day; Phillips's boat is shown in his lower figure shored up on the stocks right side up. The presence of a definite rudder is another suspicious

feature; curraghs are, on the contrary, always steered by paddle or oar.

Mr R. Morton Nance, who describes and figures Phillips's vessel in *The Mariner's Mirror* of July 1922, and is inclined to accept the sketches as trustworthy, admits that "without doubting the good faith of Captain Phillips", the drawing of a killick in the picture is apparently unlike any known variety and he infers that it must have been carelessly observed. Similarly he characterizes the setting of the sail abaft the mast on the two vessels in the background as "an extraordinary expedient".

Another fact that suggests doubt is the presence of a plank-built, punt-shaped tender towed astern of the wicker ship. We may well ask, Why is it not constructed of wicker, like the parent ship?

The problem presented by the sketches is probably one that we shall never solve to our entire satisfaction and further space cannot be given to it here. The reader must form his own opinion after studying the sketches and comparing with the known facts concerning curragh construction, past and present.

Gaelic Curragh Terms

The following terms were collected mainly in the counties of Kerry, Clare and Donegal; the particular provenance of each is indicated by a letter within brackets as follows:

General, (G); Dingle peninsula, Kerry, (K); Blasket Islands, (B); County Clare, (C); Donegal, (D); Aran Islands (A); Anglo-Irish terms, used by English-speaking fishermen, (A-I); pl. indicates the plural form of the term.

English term	Gaelic equivalent
The curragh itself	Curach in Donegal, Aran and Connaught; naomhóg[1] in Kerry and Clare; canoe in A-I
Stem or head	Caibín (B); tosach (K); cloigean and gob an churaigh (A)
Stern	Ball deiridh (K); deire (A and D); stiúir (B)

1 *Naomhóg* is pronounced naevõg. It comes from *noe* and *nai*, synonyms in Old Irish for curach, qualified by the diminutive termination *óg*, small. These O.I. words *noe* and *nai* are cognate with the Latin *navis*, and from *navis longa* we get the Irish *long*, a ship.

English term	Gaelic equivalent
Bows	Bútaí (B)
Gunwale frame	Fráma, pl. frámaí (G)
Upper gunwale frame	Fráma uachtair (A); gunail (K)
Lower gunwale frame	Fráma íochtair (A); raoiseach (K)
Vertical strut between upper and lower gunwales	Taca, pl. tacaí (K); pluganna (A); standard (A-I)
Shoulder splint or fishbar	Clár guaileáin (C); cnámh píosa an guaileáin (B); splice tosach, A-I in Kerry
Bracing or shoulder bar (used in Iniskea)	Maide droma (Mayo); centre-stick (A-I)
Thwart	Tochta; pl. tochtaí (G); seas (A)
Loose or removable thwart	Clórd (N. Mayo)
First thwart	Seas tosaigh (A)
Second thwart	Seas láir (A)
Third thwart	Seas deiridh (A); literally "end thwart"
Fourth thwart	Tarna seas deiridh (A); literally "second end thwart"
Kneeling board at stern	Seas beag (C); literally "little stand"
Ribs (transverse frames)	Fúnsa, pl. fúnsaí (K); easna, pl. easnaí (C); ribíní (B); couplí (D); A-I, hoops (D); couples (D). Funsa = hoop; easna = rib.
Stringers	Lata, pl. lataí (K) and (D); liúrach, pl. liúracha (A and C); laths (A-I)
Median or keel stringer	Clár droma (K); bata mór (K); i.e. "great batten". Clár = board; droma is genitive case of drom, base or back
Knees (angular supports)	Cnaoidhe, pl. cnaoidhthe (K); glún, pl. glúna (K)
Footrest or bar	Maide cos (A and K); footstick (A-I)
Footrest cleat	Buaic (K)
Fabric cover, usually calico or canvas	Croiceann naomhóige (K); Croiceann (D); clúdach anairte (B); hide, A-I in Kerry and Donegal
Canvas (really calico)	Canabhás (G)
Rowing cleat on gunwale	Adhbhar (K); relic (A) = "rowlock"
Thole-pin	Dola, pl. dolaí (K) and (B); cruga (A and C)
Thole-pin socket	Claibín (K); bloicín (C); timbelar (B); A-I, timbel (= thimble) in Kerry
Paddle	Ceásla (D); sluasat (G)
Oar	Maide rámha, pl. maidí rámha (G)[1]
Blade of an oar	Bas (G); lann (A)
Loom (shaft of an oar)	Cos (G)
Hand grip of an oar	Dorn (G); the word means "fist"

1 *Maide* is a stick (of wood); *rāmh* is a noun signifying the act of rowing; rámha is the genitive case so *maide rámha* = "a rowing stick".

English term	Gaelic equivalent
Thole-pin block (bull) on oar loom	Cluas (G); A-I, oar-block (K); bull (D); glaimbín (A)
Wooden bailer	Cupán ádhmaid (C) and (K) = a wooden cup
Bailer of any sort	Taoscán (G)
Mast	Crann seóil (K); crann (A)
Mast thwart	Tochta seóil (K); tochta crainn (B); seas crainn (A)
Mast-shoe	Ceap treo (A)
Sail	Seól (G)
Yard of a sail	Slat, also cleith (K) and (A)
Sheet of a sail	Sgód or siota (K) and (A)
Halliard	Lainnéar (A); hailéar (K), a loan word from English

I cannot conclude this all-too-incomplete survey of Irish curraghs without expressing my gratitude to that widening circle of friends in Ireland who have done so much to further the research. Beside those helpers of whom I have already made mention, and the many fishermen, nameless here, who have given so liberally of their knowledge, I wish to thank in particular Mr S. Ó Duilearga, Honorary Director of the Irish Folklore Commission, and Mr Donal Ó Carroll and Mr Oscar Mac Uilis, of Dublin, for much valuable assistance. It is, indeed, gratifying to find that my efforts have received a warm-hearted welcome in Ireland and are highly appreciated there.

Finally, my hearty acknowledgement is due to the Society's draughtsman, Mr P. J. Oke, who has so admirably translated my pencilled curragh plans into professional shape.

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THE CORACLES OF THE TIGRIS AND EUPHRATES

By James Hornell

To the stranger visiting Iraq the most arresting sight on the Tigris is usually the circular coracle locally termed *quffah*.[1] These strange craft abound more particularly in the neighbourhood of Bagdad, where they serve as water-taxis to the mass of the people, so useful and ubiquitous and so cheap to hire are they. Their principal duties consist in ferrying passengers and goods across the river, in bringing to market loads of melons grown on the sandbanks upstream, in serving as tenders to larger craft and as lighters for the discharge of grain cargoes brought down river from the country beyond Mosul on inflated skin rafts (*keleks*). Ferry quffahs vary greatly in size—from a little one carrying only a couple of passengers to those large enough to transport three horses and several men.[2] Still larger are those used for lighterage work in the discharge of *kelek* cargoes; the largest of these are capable of carrying heavy cargo to the extent of between four and five tons, on a freeboard of 6–8 in.

In shape a quffah is almost identical with the Tibetan coracle of the Yalung River, the craft likened in form to the Tibetan food-bowl—perfectly circular in plan, nearly flat-bottomed, and with convexly curved sides that tumble home to join the stout cylindrical gunwale bounding the mouth, which is less in diameter than that at mid-height.

In construction a quffah is just a huge lidless basket, strengthened within by innumerable ribs radiating from around the centre of the floor. The type of basketry employed is of that widely distributed kind termed coiled basketry. In this system the arrangement is that of a continuous and flattened

1 *Quffah* in Arabic signifies a basket, the plural being *quffât*. The word has no standardized spelling in English though *kuffa* and *guffa* are common forms; in this paper I shall treat *quffah* as a loan word and form the plural in the usual way—*quffahs*.

2 Budge, E. W., *By Nile and Tigris*, 1920, I, 183.

spiral, formed of a stout bundle of parallel lengths of some fibrous material—straw, reeds or palm leaflets—bound by a parcelling or whipping into a rope-like cylinder. By concentric coiling of this "filled rope", the shape required is gradually built up. The parcelling consists of a narrow ribbon of strips split off from a date-palm leaflet, wound in an open spiral around the filling. As this proceeds the upper part of the coil immediately below is caught in by the lacing material being threaded through a hole made by a stout needle or other piercing instrument; this securely ties together the successive coils. The method is similar to that in use throughout Africa in the making of innumerable varieties of baskets and mats. The gunwale consists of a bundle of numerous withies, usually of willow, forming a stout cylindrical hoop bound round and attached to the uppermost and last-formed coil by closely set series of coir lashings.

The inner framework giving strength and rigidity to the coiled walls of the quffah is formed of a multitude of curved ribs, closely set; usually split branches of willow, poplar, tamarisk, juniper or pomegranate are employed; when these are not available the midribs of date-palm leaves are used, but these are less esteemed. According to the size of the craft to be built, eight, twelve or sixteen of these split branches are chosen of a length sufficient both to extend across the floor at its centre and also to pass up one side as a rib. These principal "frames" are disposed in two series, one at right angles to the other. As half of those in each series pass down the side and across the bottom from opposite sides, their lower sections overlap and interdigitate, forming a strong double band across the floor; an equal number are similarly disposed at right angles to the first series, thereby giving two series of flooring or burden bands crossing one another on the floor. The quadrant spaces between these series of frames or main timbers are filled with very closely set ribs, bent after soaking in warm water to fit the concavely curved form of the walls of the quffah on the inside; sometimes the sharpness of the bend causes a splintering at the point where the side begins to turn inwards toward the gunwale. As the width of the quadrants bounded

by the four series of frames widens with distance from the centre, the first placed ribs are slightly longer than those on each side of them, and those intercalated later are progressively slightly shorter, pair by pair. The lower ends are pointed in order to fit closer together at the centre.

As each of these ribs and frames is placed in position, it is sewn with coir cord to the basketry walls. Two men are necessary for this operation, one inside the quffah to pass the cord through the wall of the basketry to his companion on the outside, who, in turn, threads it back to the inside, after hauling it taut. On the exterior the cord is seen passing obliquely upward from one seam to another; on the inside it passes horizontally over the rib from side to side and then emerges on the outside to repeat the oblique stitch to the seam above. On the inner side of the quffah the regularity of the series of horizontal stitches imparts an appearance of annulated ribbing that is characteristic and pleasing in its symmetry.

The only permanent fittings consist of four short wooden bars fitted on the inside at equal distances from one another and at a foot or so below the gunwale. These are for the paddler to rest his knees against when propelling his craft, at whatever quadrant of the gunwale he may be stationed; they also serve as cleats whereon to hang rope grommets to which to make fast a mooring rope. When horses and donkeys are carried they are sometimes tied to these grommets to prevent them from jumping overboard if alarmed.

After the structure of the quffah is complete, the outside is thickly coated with hot bitumen brought from Hit on the Euphrates. This forms an efficient waterproofing. In addition, a thick layer of this bitumen is applied to the floor in order to level it and to protect the floor lashings from damage. The inner surface of the sides is left bare. Subsequently, if the boatman or *quffahji* be superstitious as he often is, he will stick a few cowries (*Cypraea moneta*) and some blue beads into the bitumen on the side below the gunwale in the hope of thus averting the evil eye. A rosette with a blue bead in the centre surrounded by a circle of cowries is a favourite design but this varies according to fancy.

Wadda ou dehasha
Min ain el lasha,

is a Bagdad rhyme which may be rendered into English as "Cowry and blue bead against the evil eye".[1]

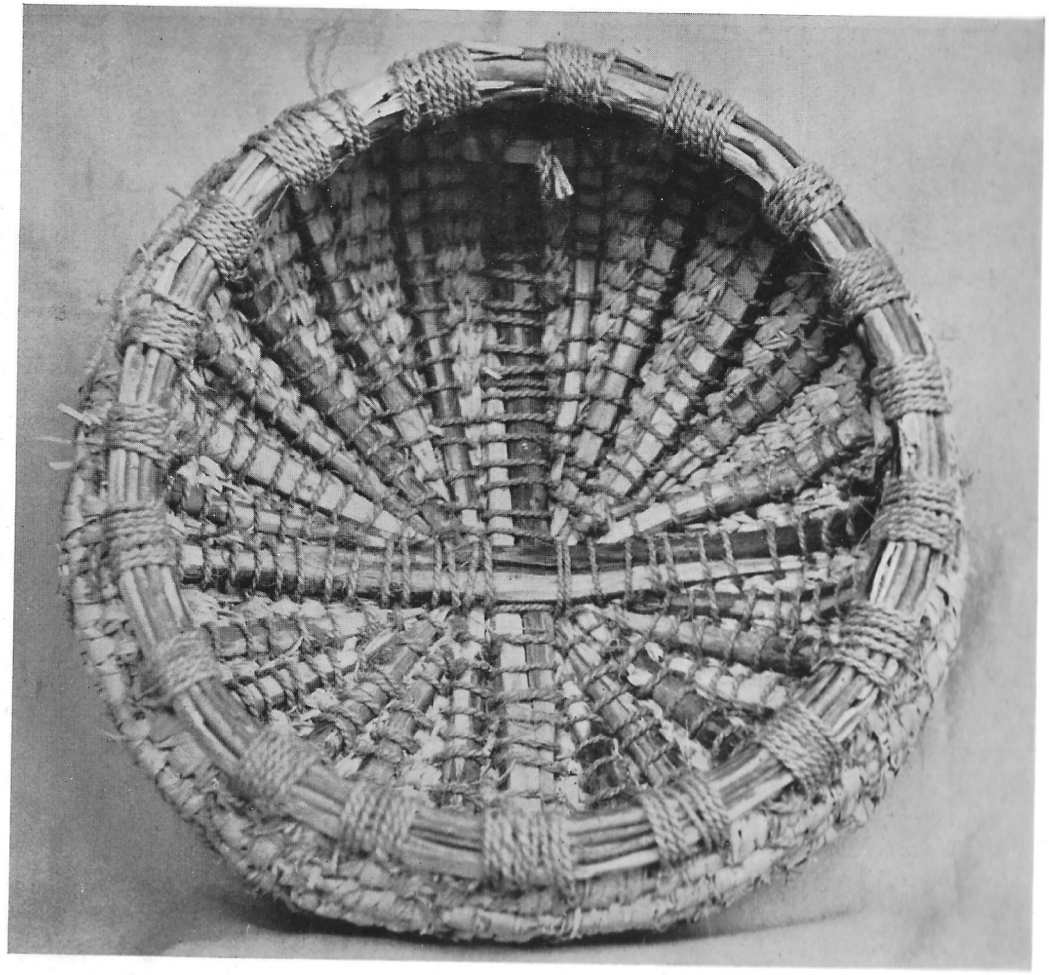
Few quffahs are now being made, and Mr V. H. W. Dowson of Basra informs me that the art of quffah making is dying out; it is probable that they may become things of the past within a few years.

When small or moderate in size the *quffahji*, leaning over one side, the functional fore-end for the time being, propels his craft with a paddle; the usual system is to make several strokes first on one side and then on the other, changing over as necessary to keep a straight course. In large-sized quffahs two men paddle on opposite sides. The paddle used to-day is long-handled, with a blade round or oblong, nailed to the outer end. It bears no resemblance to the "oars" working on a thole-pin shown in Assyrian bas-reliefs of the quffahs of Sennacherib's period.

In olden times a skin covering as used to-day in India and Tibet appears to have been customary instead of the bitumen daubing of the modern quffah; this change may not be of very ancient date, for Chesney in the middle of last century wrote:[2] "In some instances, though but rarely in the present day, the basketwork is covered with leather." A curious transitional form is also mentioned by Layard in his *Nineveh and its Remains*,[3] where he says that quffahs are "sometimes covered with skins, over which bitumen is smeared".

The lineage of the Iraqian quffah is extremely ancient. Its predecessors were as common on the great rivers in the reigns of Ashur-nasir-pal, Sennacherib and Ashur-bani-pal (ninth to seventh centuries B.C.) as they are at Bagdad now, judging from the sculptured scenes on palace panels from Nimrud and Nineveh now in the British Museum. Some of these were evidently of greater size than any in use at the present day, for

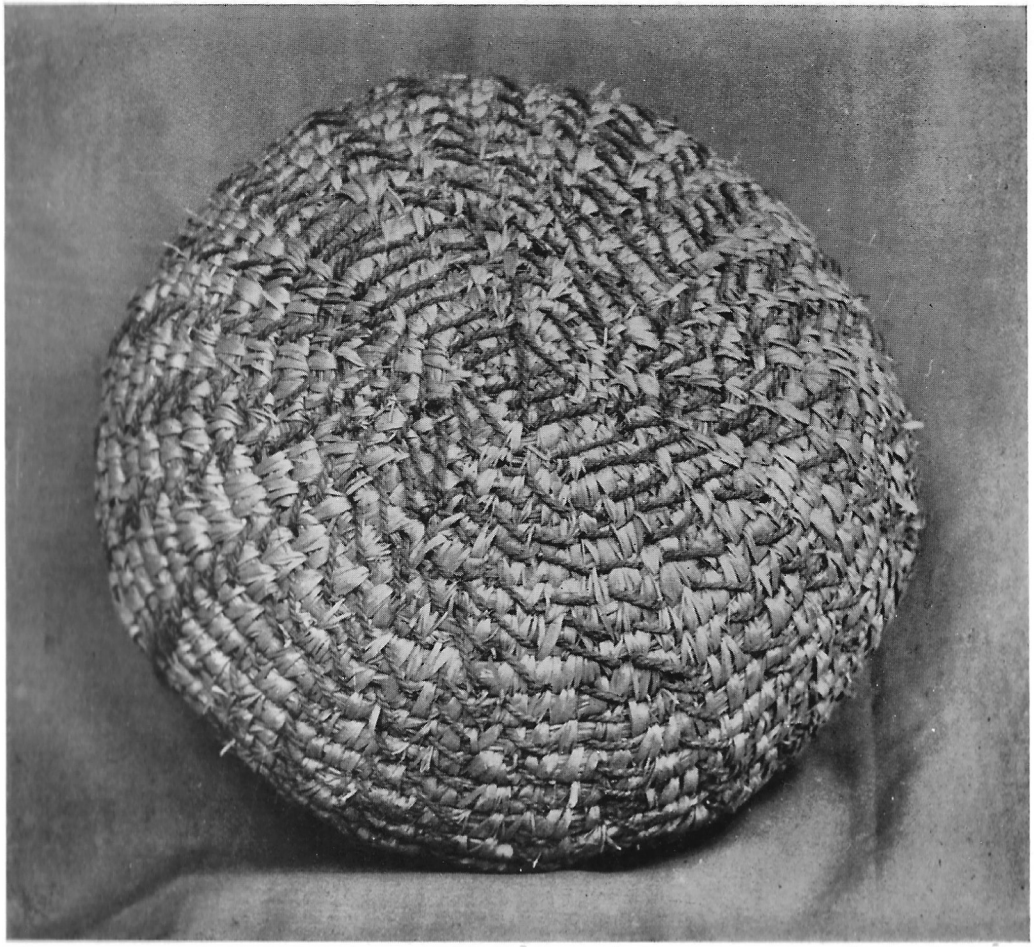
1 Stevens, E. S., *By Tigris and Euphrates*, 1923, p. 224.
2 Chesney, F. R., *Expedition for the Survey of the Rivers Euphrates and Tigris*, 1850, II, 640.
3 1849, Pt. II, p. 380.



INNER ASPECT OF A MODEL QUFFAH

Photo by J. Hornell

PLATE IV



OUTER ASPECT OF A MODEL QUFFAH BEFORE COATING WITH BITUMEN

Photo by J. Hornell

the Assyrian artist employed by Sennacherib shows them as rowed, not paddled, by four boatmen, two at each end. The cover is marked out into small rectangular areas, arranged in three horizontal bands on the sides; these are generally regarded as pieces of hide sewn together, but their relatively small size arouses some doubt. Proof of the great size of these craft is evidenced by the heavy cargo that they carry, consisting of large stone slabs and massive hinge stones. In all the sculptured scenes on the Nineveh panels the rowers are depicted as seated in couples upon stout thwarts resting on the gunwales and all are shown as in the act of pulling on their oars. The quffahs figured on the older panels from the palace of Ashur-nasir-pal II, who reigned 883–859 B.C., at Calah (Nimrud), are considerably smaller. In place of four rowers, two men facing one another form the crew; one quffah is transporting a chariot and can just manage to stow it with the wheels outside the craft and half the shaft projecting outboard. Unlike the Sennacherib quffah, there is no sign of skin patchwork on the cover, but both are of the same deep bowl shape with but slight trace of contraction between the bilge and the gunwale—none of the marked tumble home of modern quffahs.

Alike in the four-man quffah where one pair of rowers are seen facing the other pair seated on the opposite side and in the smaller two-man size, half the crew seemingly is pulling against the other half—an impossible procedure. This anomaly has given rise to much discussion and is opposed to the statement of Herodotus that in the two-man quffahs which he describes, one man, in rowing, pulls, while his companion pushes (Bk. I, ch. 194). This would seem to be negatived by the very definite attitudes of the men in all the sculptured scenes, where all are shown as in the last phase of the pulling stroke. It may be that Herodotus is, after all, correct and that the men at the after end, who are in reality "pushing", have been shown by the sculptor as pulling vigorously in time with those at the other or bow end in order that symmetry, so dear to the ancient artist, may be ensured. In this assumption we are not without a precedent from analogy, for the same sculptors endowed their human-headed bull colossi with five

legs to ensure an appearance of symmetry whether viewed from the side or the front.

The form of the Assyrian quffah oar is likewise a puzzle, so unlike is it to any other coracle paddle or oar of which we have knowledge. As seen in the sculptures two varieties are represented. In that on the Nineveh panels the loom or shaft is long, with the outer end curved in crook form into a semicircle, held in place by a lashing across to the loom. On the near side of the crook a short piece of wood, of double wedge form, is lashed athwart the loom, its ends, which represent functionally the blade of an oar, projecting on each side in the same plane as the crook bend. In the earlier form from Nimrud, the crook is absent and the blade is represented by a piece of board lashed across the extreme end of the loom. The reason for a design so complex and apparently inefficient as the Nineveh variety is difficult to understand, but it must have had some quality fitting it to local conditions, for a degraded modification of the same type is actually in use in some of the rude flat-bottomed plank-built boats (*shakhtūr*) of the Iraq of to-day. In these the steering oar is forked at the outer end with a piece of board tied across the fork to form a primitive blade.

In the Nineveh figures each oar worked on a long thole-pin tied inside the gunwale and fitted to slant toward the near-by end. In one Nimrud figure there is instead a suggestion of an oar grommet attached to the gunwale or to a thole-pin.

Herodotus, who visited Babylon in the fifth century B.C., gives a long and interesting description of the quffahs of his day. He noted that the frames were of willow with a covering of skins stretched outside; in shape he describes them as "round like a shield, without either stem or stern" (Bk. I, ch. 194). So far as his description goes it is correct as judged by present-day examples save for the substitution of bitumen for skin as a protective covering. But in his account of their function and the extent of their voyaging he errs through confusing the origin and duties of the *kelek*, the huge timber raft supported by hundreds of inflated goat skins, with those of the quffah. For the reasons which lead to this conclusion, reference should be made to my note in *Man*, 1924, No. 123.

Quffahs are never used for traffic from the hill country at the present day and are never broken up until they become unserviceable. Their life is long for bitumen is a splendid preservative and when the coating cracks and begins to peel off, a fresh application makes the craft nearly as good as when new.

Dimensions. Average sizes: diameter of mouth, $4\frac{1}{2}$ to 10 ft.; depth, from $2\frac{1}{2}$ to 4 ft. A Bagdad informant gives the size of the largest cargo lighter in port as 16 ft. 5 in. across the mouth; the maximum circumference as 57 ft., with a depth of 10 ft. 6 in. This size is wholly exceptional; its cost is given as 1000 rupees. The larger sizes are very heavy. Major R. F. Wykeham-Martin tells me of one which required the combined efforts of eleven of his men to handle it up the bank.

To Mr S. N. Hare, Bagdad, my thanks in particular are due for his kindness in sending me a model quffah, correct in all details, made specially for him by an expert quffah builder. I have also to acknowledge information regarding dimensions kindly supplied by Mr H. J. Braunholtz.